# Final Mitigated Negative Declaration

Valley Water

May 2021

# Calabazas Creek Bank Rehabilitation Project

Valley Water Project No. 62084001
SCH# 2020090370

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# Acronyms and Abbreviations

| | |
|---|---|
| AB | Assembly Bill |
| ACHP | Advisory Council on Historic Preservation |
| ALUC | Airport Land Use Commission |
| BAAQMD | Bay Area Air Quality Management District |
| BMPs | Best Management Practices |
| CAA | Clean Air Act |
| Cal/EPA | California Environmental Protection Agency |
| Cal/OHSA | California Occupational Health and Safety Administration |
| CalRecycle | California Department of Resources Recycling and Recovery |
| CAP | Climate Action Plan |
| CARB | California Air Resources Board |
| CCAA | California Clean Air Act |
| CCR | California Code of Regulations |
| CDC | California Department of Conservation |
| CDFW | California Department of Fish and Wildlife |
| CEQA | California Environmental Quality Act |
| CESA | California Endangered Species Act |
| cfs | cubic feet per second |
| CNDDB | California Natural Diversity Database |
| CNEL | Community Noise Equivalent Level |
| CNPPA | California Native Plant Protection Act |
| CNPS | California Native Plant Society |
| CO | Carbon Monoxide |
| $CO_2$ | Carbon Dioxide |
| $CO_2e$ | Carbon Dioxide Equivalents |
| CRHR | California Register of Historical Resources |
| CWA | Federal Clean Water Act |
| dBA | Decibels on the A-weighted scale |
| DNL | Day-Night Average Sound Level |
| DPM | Diesel Particulate Matter |
| DTSC | Department of Toxic Substances Control |
| DU/acre | dwelling units per acre |
| EIR | Environmental Impact Report |
| EPA | United States Environmental Protection Agency |
| FEMA | Federal Emergency Management Agency |
| FESA | Federal Endangered Species Act |
| F&G Code | California Fish and Game Code |
| FMMP | Farmland Mapping and Monitoring Program |
| GHG | Greenhouse Gas |
| HCP | Habitat Conservation Plan |
| HMMP | Habitat Mitigation and Monitoring Plan |
| $L_{eq}$ | Equivalent Continuous Sound Level |

| | |
|---|---|
| $L_{max}$ | maximum noise level |
| LOS | Level of Service |
| LRA | Local Responsibility Area |
| MBTA | Migratory Bird Treaty Act |
| MND | Mitigated Negative Declaration |
| MRP | Municipal Regional Permit |
| MRZ | Mineral Resource Zone |
| MS4 | municipal separate storm sewer system |
| MT | metric Tons |
| NMFS | National Marine Fisheries Service |
| NAHC | Native American Heritage Commission |
| NCCP | Natural Community Conservation Plan |
| NHPA | National Historic Preservation Act |
| NO | Nitric Oxide |
| $NO_2$ | Nitrogen Dioxide |
| $NO_x$ | Nitrogen Oxides |
| NOI | Notice of Intent |
| NPDES | National Pollutant Discharge Elimination System |
| NPS | National Park Service |
| NRHP | National Register of Historic Places |
| NTU | Nephelometric Turbidity Units |
| NWIC | Northwest Information Center |
| OES | Office of Emergency Services |
| OHWM | Ordinary High Water Mark |
| PCA | Pest Control Advisor |
| PG&E | Pacific Gas and Electric Company |
| PM | Particulate matter |
| PPV | peak particle velocity |
| PRC | Public Resources Code |
| PRD | Permit Registration Document |
| Project | Calabazas Creek Bank Rehabilitation Project |
| RCRA | Resource Conservation and Recovery Act |
| ROG | Reactive Organic Gases |
| RWQCB | San Francisco Bay Regional Water Quality Control Board |
| SB | Senate Bill |
| SCCFD | Santa Clara County Fire Department |
| Scoping Plan | Climate Change Scoping Plan |
| SHPO | State Historic Preservation Officer |
| SMP | Stream Maintenance Program |
| SSC | Species of Special Concern |
| SWPPP | Storm Water Pollution Prevention Plan |
| SWRCB | State Water Resource Control Board |
| TAC | Toxic Air Contaminants |
| TMDL | Total Maximum Daily Limit |
| TPZ | Tree Protection Zone |

| | |
|---|---|
| UCMP | University of California Museum of Paleontology |
| USACE | United States Army Corps of Engineers |
| USC | United States Code |
| U.S. DOT | United States Department of Transportation |
| USFWS | United States Fish and Wildlife Service |
| USGS | United States Geological Service |
| Valley Water | Santa Clara Valley Water District |
| VMT | Vehicle Miles Traveled |
| VOC | Volatile Organic Compound |
| VTA | Santa Clara Valley Transportation Authority |

# Key Terminology

***Beneficial Impact:***

A project impact is considered beneficial if it would result in the enhancement or improvement of an existing physical condition in the environment – no mitigation is required when an impact is determined to be beneficial.

***Best Management Practices:***

Measures typically derived from standardized Santa Clara Valley Water District (Valley Water) operating procedures. These practices have been identified as methods, activities, procedures, or other management practices for the avoidance or minimization of potential adverse environmental effects. They have been designed for routine incorporation into project designs and represent the "state of the art" impact prevention practices.

***Less-than-significant Impact:***

This is indicated in the Initial Study checklist where the impact does not reach the standard of significance set for that factor and the project would therefore cause no substantial change in the environment (no mitigation needed).

***Less-than-significant Impact with Mitigation:***

This is indicated in the Initial Study checklist where the impact is determined to exceed the applicable significance criteria, but for which feasible mitigation measure(s) are available to reduce the impact to a level of less-than-significant.

***Mitigation Measures:***

Mitigation includes: (a) avoiding the impact altogether by not taking a certain action or parts of an action; (b) minimizing impacts by limiting the degree or magnitude of the action and its implementation; (c) rectifying the impact by repairing, rehabilitating, or restoring the impacted environment; (d) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and (e) compensating for the impact by replacing or providing substitute resources or environments.

***No Impact:***

This is indicated in the Initial Study where, based on the environmental setting, the stated environmental factor does not apply to the Project.

***Potentially Significant Impact:***

This is indicated in the Initial Study where the project impact may cause a substantial adverse change in the environment, but for which (1) no feasible mitigation is available to reduce the impact to a less-than-significant level, or (2) feasible mitigation has been identified but the residual impact remains significant after mitigation is applied.

***Significance Criteria:***

A set of criteria used by the lead agency to determine whether an impact would be considered significant. Valley Water relied upon the significance criteria set forth in the California Environmental Quality Act (CEQA) Guidelines and criteria based on the regulatory standards of local, State and federal agencies.

# Chapter 1
# Introduction

## Organization of this Document

This document is organized to assist the reader in understanding the potential impacts that the project may have on the environment and to fulfill CEQA (Public Resources Code [PRC] Section 21000 *et seq.*). Chapter 1 indicates the purpose under CEQA, sets forth the public participation process, and summarizes applicable State and federal regulatory requirements. Chapter 2 describes the location and features of the project and Chapter 3 describes the environmental setting. Chapter 4 evaluates the potential impacts through the application of the CEQA Initial Study Checklist questions to project implementation. Chapter 5 lists the contributors, and Chapter 6 supplies the references used in its preparation.

Responses to comments received during the 30-day public review period are provided in **Appendix H**. Responses to comments resulted in minor revisions to the draft Mitigated Negative Declaration (MND). These revisions were made for clarification purposes, and those changes are tracked in this document using strike-through format for text deletions and underline for text additions.

## Purpose of the Mitigated Negative Declaration

The Santa Clara Valley Water District (Valley Water), acting as the Lead Agency, prepared a draft MND to provide the public, responsible agencies and trustee agencies with information about the potential environmental effects of the Calabazas Creek Bank Rehabilitation Project (Project).

This MND was prepared consistent with CEQA, the CEQA Guidelines (Title 14, California Code of Regulations [CCR] 15000 *et seq.*), and Valley Water procedures for implementation of CEQA (Environmental Management System - Environmental Planning Q520D01). CEQA requires that public agencies, such as Valley Water, identify the significant adverse impacts and beneficial environmental effects of their actions. Beneficial impacts should be encouraged and expanded where possible and adverse impacts should be avoided, minimized, or mitigated in cases where avoidance and minimization are not possible.

In addition to acting as the CEQA Lead Agency for its projects; Valley Water's mission includes objectives to conduct its activities in an environmentally sensitive manner as a steward of Santa Clara Valley watersheds. Valley Water strives to preserve the natural qualities, scenic beauty and recreational uses of Santa Clara Valley's waterways by using methods that reflect an ongoing commitment to conserving the environment.

## Decision to Prepare a Mitigated Negative Declaration

The Initial Study (Chapter 4) for the Project identifies potentially significant effects on biological resources. Mitigation measures have been proposed for the Project to reduce such effects to less-than-significant levels; and therefore, the proposed MND is consistent with CEQA Guidelines Section 15070 which indicate that an MND is appropriate when:

The Project Initial Study identifies potentially significant effects, but:

a. Revisions to the project plan were made that would avoid, or reduce the effects to a point where clearly no significant effects would occur, and

b. There is no substantial evidence that the Project, as revised, may have a significant effect on the environment.

# Public Review Process

This draft MND was ~~will~~ be circulated to the State Clearinghouse, local and State agencies, interested organizations, and individuals who may wish to review and provide comments on the description, the proposed mitigation measures or other aspects of the report. The availability of the draft MND and opportunity for public comment was announced in advertisements published in two newspapers of general circulation. The publication ~~will~~ commenced the 30-day public review period per CEQA Guidelines Section 15105(b) which began ~~beginning~~ on **September 18, 2020** and ended ~~ending~~ on **October 19, 2020**.

Due to the on-going COVID-19 pandemic, physical copies of the draft MND and supporting documents were ~~will~~ not be available for public review. However, Valley Water made ~~will make~~ electronic copies of the draft MND available for review online at:

- Valley Water website: https://www.valleywater.org/CalabzasCreekRP
- State Clearinghouse CEQAnet Web Portal: https://ceqanet.opr.ca.gov

Written comments or questions regarding the draft MND were ~~should be~~ submitted to the name and address indicated below.

Alex Hunt
Associate Environmental Planner
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3614
Phone: (408) 630-3007
e-mail: ahunt@valleywater.org

Valley Water received letters commenting on the draft MND from the following parties during the public review period:

- San Francisco Bay Regional Water Quality Control Board (RWQCB)
- California Department of Fish and Wildlife (CDFW), Bay Delta Region

~~The proposed MND, along with any comments, will be considered by Valley Water prior to a decision on the Project~~. Prior to making a decision on the Project, Valley Water considered all comments made during the public review period and made necessary changes to the document in response to comments. Valley Water's responses to the written comments received during the public review period are included in **Appendix H**. The final MND includes revisions to the draft MND in response to public and agency input and Valley Water staff-initiated revisions. None of these revisions are considered substantial under Section 15073.5 of the CEQA Guidelines and the new information added merely clarifies, amplifies, or makes insignificant modifications to the draft MND.

# Interagency Collaboration and Regulatory Review

The CEQA review process is intended to provide both trustee and responsible agencies with an opportunity to provide input into the project. Trustee agencies are State agencies that have authority

by law for the protection of natural resources held in trust for the public. Responsible agencies are those that have some responsibility or authority for carrying out or approving a project; in many instances these public agencies must make a discretionary decision to issue a local permit; provide right-of-way, funding or resources that are critical to the project's proceeding. In this instance the California Department of Fish and Wildlife (CDFW), San Francisco Bay Regional Water Quality Control Board (RWQCB), the City of Cupertino, and the City of Sunnyvale are considered responsible agencies under CEQA.

This MND is intended to assist State and local agencies to carry out their responsibilities for permit review or approval authority over various aspects of the Project. The Project would likely require project-specific permitting and/or review as summarized in **Table 1-1** below.

**Table 1-1.** Summary of Applicable Regulatory Requirements

| Agency | Authorization |
|---|---|
| CDFW | California Fish and Game Code (F&G Code) Section 1602 Lake and Streambed Alteration Agreement |
| RWQCB | Clean Water Act (CWA) Section 401 Water Quality Certification and Construction General Permit |
| USACE | CWA Section 404 Permit |
| City of Cupertino | Encroachment Permit; Tree Removal Permit; Traffic Plan; Temporary Sign Permit |

Valley Water hosted an interagency site visit on July 15, 2019, to solicit agency feedback on Project alternatives, potential impacts, mitigation, and permitting requirements. Staff representing CDFW, RWQCB, and United States Army Corps of Engineers (USACE) were in attendance. After advancing the Project design, follow-up conference calls were held with the agencies to further discuss alternatives and mitigation on February 11 and March 19, 2020. Feedback received during these meetings was incorporated or considered during development of this MND.

# Chapter 2
# Project Description

## Project Background

Valley Water is responsible for maintenance of portions of Calabazas Creek, which extends approximately 13.3 miles from the confluence with the Guadalupe Slough on the San Francisco Bay upstream to the Saratoga foothills (**Figure 2-1**). The total drainage area of Calabazas Creek is 22.7 square miles, over 90% of which is urbanized. Consequently, maintenance of the creek channel is necessary to support the creek's function as a flood protection facility, to prevent damage to adjacent properties from erosion, and to minimize impacts to the natural creek habitat (e.g., loss of habitat, reduced water quality).

The Project reach, which spans approximately 0.7 mile from Bollinger Road (upstream end) to Miller Avenue (downstream end), is used for groundwater recharge by Valley Water. Imported water from the Stevens Creek pipeline is released about one-quarter mile upstream of Prospect Road near the Union Pacific Railroad, approximately 1.75 miles upstream of the Project area. The recharge zone usually extends downstream through the Project area and past Interstate 280 to about North Tantau Avenue. Depending on the gravels in the creek, the released water may go below ground in some areas and re-surface further downstream.

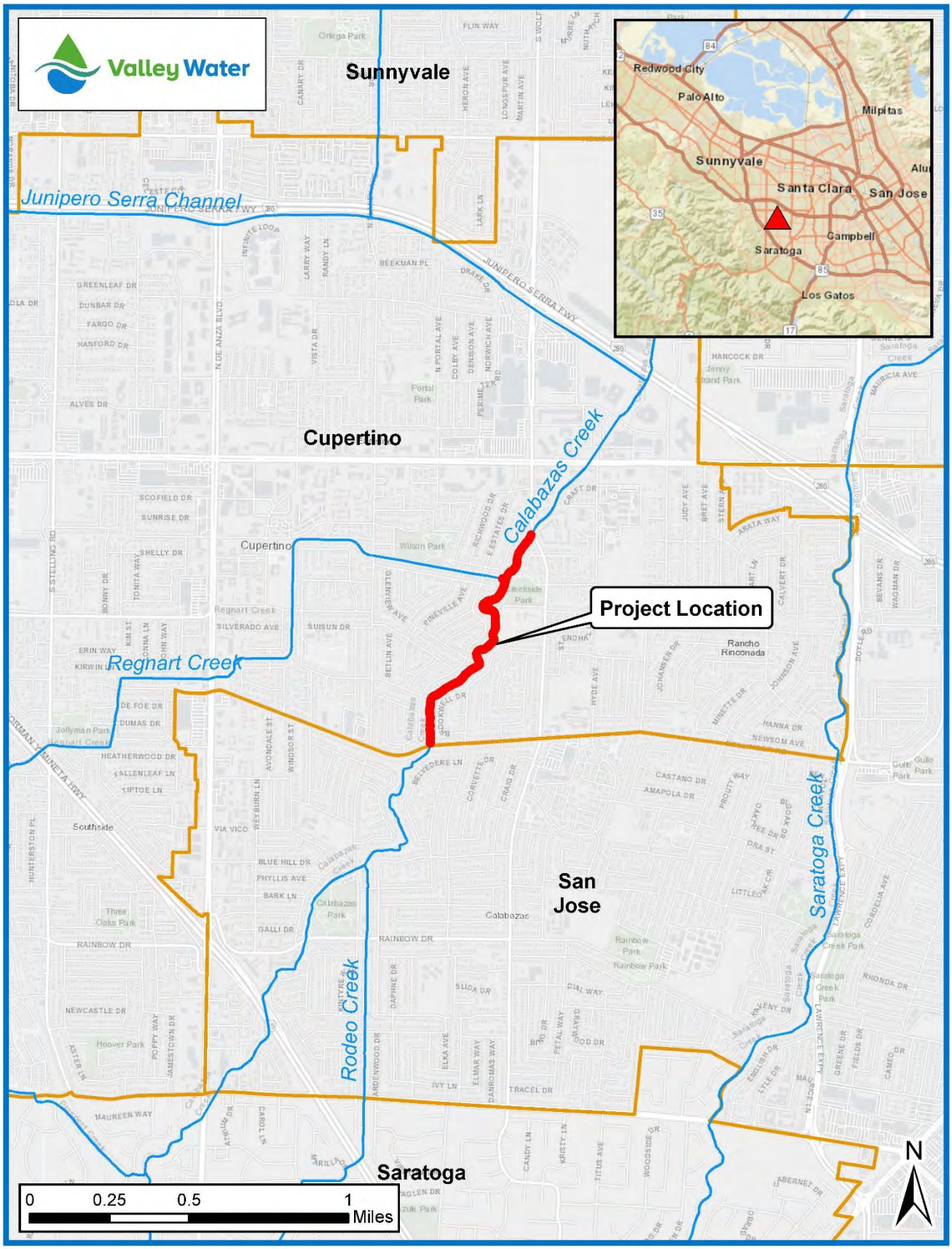
Calabazas Creek in the Project area is a deeply incised watercourse with a history of bank erosion and little distance between the top of bank and residential fence lines. In 2011, Valley Water completed construction of the Calabazas Creek Flood Protection Project along 3.7 miles of Calabazas Creek from Miller Avenue to Wardell Road. As part of that project, Valley Water repaired bank erosion at four locations in the current Project area. During inspections of the Project reach performed by Valley Water in 2017, additional toe erosion, bank failure, and/or surfaces lacking vegetative cover were observed at 10 locations. Many of these deficiencies were the result of winter 2016/2017 storm events and require bank rehabilitation to repair the banks to as-built conditions and prevent further erosion. The purpose of the current Project is to address those deficiencies.

## Project Objectives

The Project would repair and stabilize (herein, "rehabilitate") eroding channel banks at 10 locations. Specific objectives of the Project are to:

- Rehabilitate damaged creek bank sections to as-built or natural conditions, including to prevent potential damage to adjacent properties;
- Minimize future bank failure;
- Minimize impacts on water quality and riparian habitat associated with continued bank erosion;
- Reduce the need for on-going maintenance; and
- Continue to provide adequate flood protection.

**Figure 2-1.** Project Location



# Project Description

The Project includes bank rehabilitation at 10 sites where creek banks have eroded. Work would generally be conducted in three phases for each site: 1) site preparation, 2) bank protection, and 3) site restoration. **Table 2-1** details the proposed bank rehabilitation work at each site. The location of the Project sites is included in **Figure 2-2** and representative plan and profile drawings of the bank repairs are included in **Appendix A**.

## Site Preparation

Site preparation would include establishing a staging area and access locations, dewatering of the creek channel, and preparing each of the 10 work locations for the bank rehabilitation work.

Equipment and materials would be delivered to the Project site and staged in an approximately 3,400-square-foot area (120 feet long and 28 feet wide) in the northwest corner of Creekside Park. The staging area would be located on the edge of the existing athletic fields. Access to the creek channel and bank rehabilitation sites would occur from the existing earthen access ramp at Creekside Park and from a paved access ramp on Bollinger Road. Equipment and materials would travel through the channel to the work sites.

While work is anticipated to occur when the creek is dry, there is a possibility that in-channel pools or minor flows would be encountered. To ensure flows do not enter the work area, cofferdams would be constructed upstream of the work area and water would be pumped through a diversion pipe to a discharge location downstream of the work area. The cofferdams would be constructed of gravel bags lined with a Visqueen plastic sheeting. The area of dewatering and location of cofferdams would be limited to the minimum amount necessary to complete the work, depending on the sites under construction and the construction year.

After the creek has been dewatered and access has been established, the eroding creek bank at each site would be cleared of surface vegetation and loose soil. An estimated 29 ~~32~~ trees would require removal to complete the Project (see Table 2-1). These trees are dispersed throughout Sites 6 through 10 and comprise a mix of native, non-native, and invasive species that help form the riparian canopy and mid-story. Care would be taken to minimize impacts on trees and other vegetation to the maximum extent practicable, including avoidance of root systems of trees that are not required to be removed. Removed native soils and vegetation would be hauled off-site for disposal, though some soils may be re-used at one or more of the 10 rehabilitation sites.

Furthermore, at Site 6, an existing electrical distribution pole guy wire and anchor occurs within the work area, which requires relocation prior to bank rehabilitation work. The relocated guy wire would be secured to the ground in a flat area above the top of bank, within approximately 15 feet of its present location.

## Bank Protection

Following site preparation, work crews would begin repair of the 10 erosional features. Generally, two bank rehabilitation treatments would be applied: riprap bank protection and sheet pile walls. Bank rehabilitation work is summarized by site in **Table 2-1**. Riprap bank protection involves the placement of large rocks or boulders along the bank to stabilize the bank, whereas sheet pile walls involve installation of vertical, metal walls to protect the bank from further erosion.

Valley Water evaluated the potential for more natural bank rehabilitation, such as through laying back the banks to establish a wider floodplain or by using bioengineered solutions (e.g., willow stakes); however, these options were rejected due to the narrow width of the riparian corridor

(constrained by adjacent development), steep existing creek banks, and the high flow velocities and shear stress in the channel (**Appendix G**).

**Figure 2-2**. Project Site Locations

**Table 2-1**. Summary of Work by Site

| Site No. | Bank Location | Proposed Repair | Length of Repair (LF)[a] | Approx. Work Area(ft²)[a] | Excavation (CY) | Backfill | | | No. of Trees Removed |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Clean Fill (CY) | Backing No. 1 (CY) | Half-ton Rip Rap (CY) | |
| 1 | East Bank | Replace 25-foot section of eroded concreted half-ton riprap, extend this concreted riprap an additional 10 feet upstream, add 20 linear feet of erosion control blanket upstream to create an appropriate transition, and realign the low-flow channel to the center of the creek. | 55 | 575 | 410 | 160 | 80 | 170 | - |
| 2 | Confluence of Regnart and Calabazas Creeks | Repair the eroding dirt embankment (on upstream end of confluence) with soil, compact, and hydroseed. Replace eroded portion of the existing concrete drop structure and place half-ton riprap in the scour hole that has formed where Regnart Creek discharges. | 60 | 750 | 50 | 20 | - | 30 | - |
| 3 | East Bank | Use soil to fill the erosional/ void beneath an existing tree. Install half-ton riprap at the bank toe to help protect against future erosion. | 40 | 225 | 250 | 140 | - | 60 | - |
| 4 | West Bank | Erosion is occurring under a portion of bank previously fortified with sacked concrete. Excavate under sacked concrete where it is undermined and add one-ton riprap at toe. | 70 | 325 | 210 | 150 | - | 70 | - |
| 5 | East Bank | Install sheet pile retaining wall about 2 feet in front of near-vertical failing bank. Backfill with clean fill behind the wall and compact. | 130 | 675 | 100 | 100 | - | - | - |
| 6 | East Bank | Repair erosion with half-ton riprap at 1.5:1 slope up to 10 feet above the channel and resurface the slope up to top of bank. | 131 ~~120~~ | 2,780 ~~3,200~~ | 2,280 ~~2,130~~ | 710 ~~680~~ | 260 ~~300~~ | 620 ~~640~~ | 3 |
| 7 | East Bank | Remove debris from landslide. Repair erosional feature with half-ton riprap at 1.5:1 slope up to 10 feet | 90 | 2,150 | 1,170 | 480 | 200 | 450 | 2 |

| Site No. | Bank Location | Proposed Repair | Length of Repair (LF)[a] | Approx. Work Area(ft²)[a] | Excavation (CY) | Backfill | | | No. of Trees Removed |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Clean Fill (CY) | Backing No. 1 (CY) | Half-ton Rip Rap (CY) | |
| | | above the channel and resurface the slope up to top of bank. | | | | | | | |
| 8 | East Bank | Install sheet pile retaining wall about 2 feet in front of vertical failing bank. Excavate and regrade soil behind sheet pile wall at 1.5:1 slope or flatter to the top of proposed bank. | 134 ~~165~~ | 2,010 ~~3,000~~ | 100 ~~500~~ | 120 ~~300~~ | - | - | 4 ~~5~~ |
| 9 | West Bank | Install sheet pile retaining wall to stabilize the failing bank (leaving existing soil and vegetation on the creek side of the wall). Excavate and regrade soil behind sheet pile wall at 1.5:1 slope to the top of proposed bank. Remove existing wooden log reinforcement and existing sewer line utility bridge and concrete abutments. | 565 | 8,500 | 2,700 | 1,800 | - | - | 13 ~~14~~ |
| 10 | East Bank (overlaps with Site 9) | Install sheet pile retaining wall to stabilize the failing bank (leaving existing soil and vegetation on the creek side of the wall). Excavate and regrade soil behind sheet pile wall at 1.5:1 slope to the top of proposed bank. | 260 | 3,950 | 1,600 | 800 | - | - | 7 ~~8~~ |
| | | **Total** | **1,535 ~~1,555~~ LF** | **21,940 ~~23,350~~ ft² (0.50 ~~0.54~~ acre)** | **8,870 ~~9,120~~ CY** | **4,480 ~~4,630~~ CY** | **540 ~~580~~ CY** | **1,400 ~~1,420~~ CY** | **29 ~~32~~ trees** |

[a] These figures are approximate for the purpose of describing the Project activities and do not represent habitat impacts. See the Biological Resources section in Chapter 4 for impacts to habitat.

## Riprap Bank Rehabilitation

Riprap bank rehabilitation would occur at Sites 1 through 4, 6, and 7. To install the riprap, an approximately 5-foot deep footing trench would be excavated along the toe of the bank and geotextile fabric would be placed over the excavated area. A rock filter backing layer (Backing No. 1, or approximately 75-pound rock) would be spread in a uniform layer over the geotextile fabric. Half-ton riprap (boulders) would then be laid on top of the backing layer along the slope to the specific depth, generally 5 feet thick. Riprap would typically extend to the 1% flood elevation, generally 10 feet above the bottom of the creek, to provide adequate bank protection while minimizing the amount of natural habitat impacted. Clean imported soil would be placed over the riprap on the re-established 1.5:1 embankment slope and compacted. Biodegradable erosion control with a native hydroseed mixture would be installed on top of the compacted earth backfill. In some locations, the natural bank slope above the riprap would be laid back (i.e., made less steep) to a 1:1 to 1.5:1 slope in order to reduce the likelihood of erosion. Banks would be recontoured to match the adjacent bank slope (i.e., returned to pre-failure configuration) to the extent possible. Where bank rehabilitation work occurs adjacent to past repairs, riprap would be tied into the existing riprap in a manner that forms a seamless transition. Furthermore, in some locations, the repair work would involve minor shifts in the location of the low-flow channel, generally away from an erosional feature and back towards the center of the creek.

## Sheet Pile Wall Bank Protection

Due to the narrow creek corridor and existing vertical nature of the bank failures, sheet pile wall bank protection would occur at Sites 5, 8, 9, and 10. At these sites, the bank would be protected by a metal sheet pile wall in front of (Sites 5 and 8) or pressed into (Sites 9 and 10) the eroding bank. The sheet pile walls would be delivered to the site by trucks in approximately 3-foot wide sections and stored in the staging area until ready for installation. The sheet pile wall would be hydraulically pressed (rather than driven) into the substrate with a silent piling system. At Sites 5 and 8, the sheet pile wall would be installed approximately 2 feet in front of the eroding vertical bank. Clean fill would be placed behind the wall (between the wall and the existing bank) and compacted. The wall at Site 8 would extend up to 6 feet below the top of the vertical bank and the bank behind the wall would be graded to a 1.5:1 slope or flatter and revegetated. At Sites 9 and 10, the sheet pile wall would be installed into the middle of the steep failing bank. Native soil and vegetation on the creek side of the wall would remain intact. An approximately 5- to 7-foot section of the wall would be exposed where the top of the bank meets the wall, and the slope above the wall would be laid back at a 1.5:1 slope and vegetated.

Site 9 also includes a sewer line and utility bridge that crosses over the creek, owned and managed by the City of Sunnyvale. The City of Sunnyvale plans to divert sewage elsewhere and therefore the pipe, utility bridge, and existing log revetment wall (protecting the existing west abutment) would be removed by Valley Water. <u>Conducting bank repair work at Site 9 does not require removal of the sewer pipe, utility bridge, or log revetment; however, Valley Water has included their removal given work would already be occurring in the area and removal of these features would benefit the riparian habitat.</u>

**Table 2-2**. Approximate Construction Excavation and Backfill

| Activity | Quantity (cubic yards) |
|---|---|
| **Excavation** | |
| Native Soils | 8,870 ~~9,120~~ |
| *Subtotal* | 8,870 ~~*9,120*~~ |
| **Backfill** | |
| Riprap (half-ton rock) | 1,400 ~~1,420~~ |
| Import Backing No. 1 (75-pound rock) | 540 ~~580~~ |
| Import Backfill (clean soil) | 4,480 ~~4,630~~ |
| *Subtotal* | *6,420* ~~*6,630*~~ |
| **Total** | **15,290** ~~**15,750**~~ |

## Site Restoration and Revegetation

Following the bank rehabilitation work, the Project area would be restored to a natural, riparian habitat to the maximum extent practicable. Areas of temporarily disturbed natural substrate would be hydroseeded or revegetated with native species. Bank slopes above the installed riprap would be vegetated with a mixture of native herbaceous riparian understory species.

At Sites 9 and 10, native riparian vegetation would be planted along the recontoured bank above the sheet pile walls, covering approximately 0.3 acre and 820 linear feet. Due to overhead electric utility lines, smaller stature trees such as California buckeye (*Aesculus californica*), elderberry (*Sambucus* sp.), and holly-leafed cherry (*Prunus ilicifolia*) would be planted near the bottom of the slope, with native herbaceous understory higher on the bank.

Following any disturbances from equipment access, the channel will be restored to its pre-construction contours to the maximum extent practicable. Post-construction Best Management Practices (BMPs) would be implemented and any unsuitable material would be removed from the Project site.

## Workers, Equipment, and Supplies

The number of workers and types of equipment utilized would vary depending on construction phase. Worker and haul trips would be greatest during the import and export of backfill and excavated materials, respectively. A summary of the estimated worker and haul trips is provided in **Table 2-3**. Proposed construction equipment and anticipated hours of use by phase and per day are listed in **Table 2-4**.

**Table 2-3**. Approximate Off-Site Construction Trips

| Construction Phase | Worker Trips Per Day | Haul Trips Per Day[1] |
|---|---|---|
| **Year 1 (Sites 1 – 7)** | | |
| Site Preparation | 6 | 1 |
| Bank Rehabilitation | 10 | 9 |
| Site Restoration | 6 | 1 |
| **Year 2 (Sites 8 – 10)** | | |
| Site Preparation | 6 | 1 |
| Bank Rehabilitation | 10 | 9 |
| Site Restoration | 6 | 1 |

[1] Haul trips were determined based on the total amount of excavation and backfill needed for the bank stabilization at each site, as well as the assumption that an average truck can handle 10 cubic yards of material per load.

**Table 2-4**. Proposed Construction Equipment

| | Site Preparation | | Bank Rehabilitation | | Site Restoration | |
|---|---|---|---|---|---|---|
| **Equipment Type** | **Equipment Amount** | **Hours Operated Per Day** | **Equipment Amount** | **Hours Operated Per Day** | **Equipment Amount** | **Hours Operated Per Day** |
| Air compressors | 1 | 3 | 1 | 2 | - | - |
| Backhoe loader | 1 | 8 | 1 | 6 | - | - |
| Bulldozer | - | - | 1 | 6 | - | - |
| Chainsaw (tree removal) | 1 | ~1 | - | - | - | - |
| Concrete hopper/ pump | - | - | 1 | 1 | - | - |
| Concrete Trucks | - | - | 2 | 1 | - | - |
| Crane | - | - | 2 | 2 | - | - |
| Dump Truck | 2 | 8 | 3 | 4 | 3 | 8 |
| Excavator | 1 | 8 | 1 | 4 | - | - |
| Generator for pump | 2 | ~1 | - | - | - | - |
| Giken Sheet Pile Installer | - | - | 2 | 4 | - | - |
| Handheld Concrete Saw | - | - | - | - | 1 | ~1 |
| Hydroseeding Applicator | - | - | - | - | 1 | ~1 |
| Jackhammers | - | - | 2 | 1 | - | - |
| Loader-track mounted | 1 | 8 | 1 | 6 | - | - |
| Motor Grader | 1 | ~1 | - | - | - | - |
| Pumps | 2 | ~1 | - | - | - | - |
| Sheepsfoot Roller | 1 | 8 | - | - | - | - |
| Skidsteer Loader | 1 | 8 | - | - | - | - |
| Truck mounted boom lift | 1 | 8 | - | - | - | - |
| Water Truck | - | - | 1 | ~1 | 1 | ~1 |

## Schedule and Phasing

Construction of the Project is expected to begin in April 2022 ~~2021~~ and conclude by October 2023 ~~2022~~. The proposed construction activities described above would occur during the dry season, from April 15th through October 15th. The proposed construction schedule is shown in **Table 2-5**. Construction activities would occur from 7:00 a.m. to 8:00 p.m., Monday through Friday. No weekend or holiday construction is planned.

**Table 2-5**. Estimated Construction Schedule

| Construction Phase | Construction Schedule | | Approximate Working Days |
|---|---|---|---|
| | Start Date | End Date | |
| **Year 1 (Sites 1 – 7)** | | | |
| Site Preparation | 4/15/2022~~1~~ | 5/15/2022~~1~~ | 22 |
| Bank Rehabilitation | 5/15/2022~~1~~ | 9/15/2022~~1~~ | 85 |
| Site Restoration | 9/15/2022~~1~~ | 10/15/2022~~1~~ | 23 |
| *Year 1 Schedule* | *4/15/2022~~1~~* | *10/15/2022~~1~~* | *130* |
| **Year 2 (Sites 8 – 10)** | | | |
| Site Preparation | 4/15/2023~~2~~ | 5/15/2023~~2~~ | 21 |
| Bank Rehabilitation | 5/15/2023~~2~~ | 9/15/2023~~2~~ | 86 |
| Site Restoration | 9/15/2023~~2~~ | 10/15/2023~~2~~ | 22 |
| *Year 2 Schedule* | *4/15/2023~~2~~* | *10/15/2023~~2~~* | *129* |
| **Complete Schedule** | **4/15/2022~~1~~** | **10/15/2023~~2~~** | **259** |

*Note: construction start and end dates are estimates and may vary.*

## Operations and Maintenance

While not immediately anticipated, if and when corrective maintenance of the bank rehabilitation work is required, this work is expected to be minor and would be limited to the rehabilitation sites evaluated in this MND. Maintenance work is expected to be less frequent and smaller in scale than maintenance work currently occurring in the Project reach, as the Project would rehabilitate the primary deficiencies in the area. Maintenance of the bank rehabilitation sites would occur for the service life of the facility and would involve restoring the sites to their as-built conditions. Maintenance repairs could address subsequent erosion at the site or riprap dislocation. Fencing along the top of the sheet pile walls would be repaired, as needed, should debris get caught in the cables or a tree fall on the fence. Vegetation planted as part of the Project would be monitored and maintained to ensure plants are fully established, consistent with regulatory permit requirements. Valley Water would continue vegetation maintenance for weed management and fire suppression, consistent with current practice.

## Best Management Practices

BMPs are practices that prevent, avoid, or minimize potentially adverse effects associated with construction and other activities. Project BMPs are included in **Table 2-6**. Additional environmental measures, not avoidable through standard construction BMPs, are developed to mitigate specific impacts associated with Project implementation and are identified in Chapter 4 of this MND. All BMPs would be incorporated into the Project construction documents (plans and

specifications) so contractors employed on the Project would be contractually required to adhere to them.

**Table 2-6.** Best Management Practices

| **Air Quality** | |
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| **AQ-1**<br><br>**Use Dust Control Measures** | The following Bay Area Air Quality Management District (BAAQMD) Dust Control Measures will be implemented:<br>1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day;<br>2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered;<br>3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited;<br>4. Water used to wash the various exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, etc.) will not be allowed to enter waterways;<br>5. All vehicle speeds on unpaved roads shall be limited to 15 mph;<br>6. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used;<br>7. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure CCR Title 13, Section 2485), and this requirement shall be clearly communicated to construction workers (such as verbiage in contracts and clear signage at all access points);<br>8. All construction equipment shall be maintained and properly tuned in accordance with manufacturers specifications, and all equipment shall be checked by a certified visible emissions evaluator;<br>9. Correct tire inflation shall be maintained in accordance with manufacturers specifications on wheeled equipment and vehicles to prevent excessive rolling resistance; and,<br>10. Post a publicly visible sign with a telephone number and contact person at the lead agency to address dust complaints; any complaints shall be responded to and take corrective action within 48 hours. In addition, a BAAQMD telephone number with any applicable regulations will be included. |
| **AQ-2**<br><br>**Avoid Stockpiling Odorous Materials** | Materials with decaying organic material, or other potentially odorous materials, will be handled in a manner that avoids impacting residential areas and other sensitive receptors, including:<br>1. Avoid stockpiling potentially odorous materials within 1,000 feet of residential areas or other odor sensitive land uses; and<br>2. Odorous stockpiles will be disposed of at an appropriate landfill. |
| **AQ-3**[1]<br><br>**Reduce Construction-related $NO_X$ Emissions** | Nitrogen oxide ($NO_X$) construction mitigation measures recommended by BAAQMD will be implemented, including the following:<br>● Minimize idling time either by shutting equipment off when not in use or by reducing the time of idling to 5 minutes [required by 13 CCR Sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site. |

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| | ● Maintain all construction equipment in proper working condition in accordance with manufacturer's specifications. The equipment must be checked by a certified mechanic and determined to be running in proper condition before it is operated.<br>● Provide a plan for approval by Valley Water demonstrating that the construction contractors' heavy-duty off-road vehicles (50 horsepower or more) to be used in Project construction, including owned, leased, and subcontractor vehicles, will achieve a Project-wide fleet-average 20 percent $NO_X$ reduction and 45 percent particulate reduction compared to the most recent California Air Resources Board (CARB) fleet average. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available.<br>● Ensure that emissions from Valley Water's construction contractors' off-road diesel-powered equipment used on the Project site do not exceed 40 percent opacity for more than three minutes in any one hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) will be repaired immediately.<br>● A visual survey of all in-operation equipment will be made at least weekly. |
| **Biological Resources** | |
| **BI-1**<br>**Remove Temporary Fill** | Temporary fill materials, such as for diversion structures or cofferdams, will be removed upon finishing the work or as appropriate. The creek channels and banks will be re-contoured to match pre-construction conditions to the extent possible. Low-flow channels within non-tidal streams will be contoured to facilitate fish passage and will emulate the preconstruction conditions as closely as possible, within the finished channel topography. |
| **BI-2[2]**<br>**Avoid Impacts to Nesting Migratory Birds** | Prior to the start of construction activities that begin during the migratory bird nesting period (between January 15 and August 31 of any year), Valley Water shall retain a qualified wildlife biologist to conduct a survey for nesting raptors and migratory birds that could nest along the Project corridor. Surveys will cover all suitable raptor and migratory bird nesting habitat that will be impacted directly or by disturbance, including habitat potentially used by ground-nesting migratory bird species.<br>All migratory bird nesting surveys will be performed no more than 7 days prior to any Project-related activity that could pose the potential to affect migratory birds. With the exception of raptor nests, inactive bird nests may be removed. No birds, nests with eggs, or nests with hatchlings will be disturbed. |
| **BI-3**<br>**Avoid Impacts to Nesting Migratory Birds from Pending Construction** | Nesting exclusion devices may be installed to prevent potential establishment or occurrence of nests in areas where construction activities would occur. All nesting exclusion devices will be maintained throughout the nesting season or until completion of work in an area makes the devices unnecessary. All exclusion devices will be removed and disposed of when work in the area is complete. |
| **BI-4[2]**<br>**Choose Local Ecotypes of Native Plants and Appropriate Erosion-** | Whenever native species are prescribed for installation the following steps will be taken by a qualified biologist or vegetation specialist:<br>1. Evaluate whether the plant species currently grows wild in Santa Clara County; and,<br>2. If so, the qualified biologist or vegetation specialist will determine if any need to be local natives, i.e. grown from propagules collected in the same or adjacent watershed, and as close to the Project site as feasible. |

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| **Control Seed Mixes** | Also, consult a qualified biologist or vegetation specialist to determine which seeding option is ecologically appropriate and effective, specifically:<br>1. For areas that are disturbed, an erosion control seed mix may be used consistent with the Valley Water *Guidelines and Standards for Land Use Near Streams, Design Guide 5, 'Temporary Erosion Control Options.'*<br>2. In areas with remnant native plants, the qualified biologist or vegetation specialist may choose an abiotic application instead, such as an erosion control blanket or seedless hydro-mulch and tackifier to facilitate passive revegetation of local native species. If a gravel has been used to prevent soil compaction, this material may be left in place [if ecologically appropriate] instead of seeding.<br>Seed selection shall be ecologically appropriate as determined by a qualified biologist, per *Guidelines and Standards for Land Use Near Streams, Design Guide 2: Use of Local Native Species*. |
| **BI-5[2]**<br>**Restore Riffle/Pool Configuration of Channel Bottom** | The channel bottom shall be re-graded at the completion of work and restored to as close to the pre-Project conditions and contours as possible. |
| **BI-6**<br>**Avoid Animal Entry and Entrapment** | All pipes, hoses, or similar structures less than 12 inches diameter will be closed or covered to prevent animal entry. All construction pipes, culverts, or similar structures, greater than 2-inches diameter, stored at a construction site overnight, will be inspected thoroughly for wildlife by a qualified biologist or properly trained construction personnel before the pipe is buried, capped, used, or moved. If inspection indicates presence of sensitive or State- or federally listed species inside stored materials or equipment, work on those materials will cease until a qualified biologist determines the appropriate course of action.<br>To prevent entrapment of animals, all excavations, steep-walled holes or trenches more than 6-inches deep will be secured against animal entry at the close of each day. Any of the following measures may be employed, depending on the size of the hole and method feasibility:<br>1. Hole to be securely covered (no gaps) with plywood, or similar materials, at the close of each working day, or any time the opening will be left unattended for more than one hour; or<br>2. In the absence of covers, the excavation will be provided with escape ramps constructed of earth or untreated wood, sloped no steeper than 2:1, and located no farther than 15 feet apart; or<br>3. In situations where escape ramps are infeasible, the hole or trench will be surrounded by filter fabric fencing or a similar barrier with the bottom edge buried to prevent entry. |
| **BI-7**<br>**Minimize Predator-Attraction** | Remove trash daily from the worksite to avoid attracting potential predators to the site. |
| **BI-8[1]**<br>**Minimize Spread of Invasive Plants** | The spread of invasive nonnative plant species and plant pathogens will be avoided or minimized by implementing the following measures:<br>1. Construction equipment will arrive at the Project clean and free of soil, seed, and plant parts to reduce the likelihood of introducing new weed species. |

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| | 2. Any imported fill material, soil amendments, gravel, etc., required for construction activities that will be placed within the upper 12 inches of the ground surface will be free of vegetation and plant material.<br>3. Certified weed-free imported erosion control materials (or rice straw in upland areas) will be used exclusively. |
| **Cultural Resources** | |
| **CU-1[3]**<br>**Accidental Discovery of Archaeological Artifacts, Tribal Cultural Resources, or Burial Remains** | If historical or unique archaeological artifacts, or tribal cultural resources, are accidentally discovered during construction, work in affected areas will be restricted or stopped until proper protocols are met. Work at the location of the find will halt immediately within 100 feet of the find. A "no work" zone shall be established utilizing appropriate flagging to delineate the boundary of this zone. A Consulting Archaeologist will visit the discovery site as soon as practicable for identification and evaluation pursuant to PRC Section 21083.2 and CCR Section 15126.4. If the archaeologist determines that the artifact is not significant, construction may resume. If the archaeologist determines that the artifact is significant, the archaeologist will determine if the artifact can be avoided and, if so, will detail avoidance procedures. If the artifact cannot be avoided, the archaeologist will develop within 48 hours an Action Plan which will include provisions to minimize impacts and, if required, a Data Recovery Plan for recovery of artifacts in accordance with PRC Section 21083.2 and Section 15126.4 of the CEQA Guidelines. If a tribal cultural resource cannot be avoided, the Action Plan will include notification of the appropriate Native American tribe, and consultation with the tribe regarding acceptable recovery options.<br><br>If burial finds are accidentally discovered during construction, work in affected areas will be restricted or stopped until proper protocols are met. Upon discovering any burial site as evidenced by human skeletal remains, the County Coroner will be immediately notified, and the field crew supervisor shall take immediate steps to secure and protect such remains from vandalism during periods when work crews are absent. No further excavation or disturbance within 100 feet of the site or any nearby area reasonably suspected to overlie adjacent remains may be made except as authorized by the County Coroner, California Native American Heritage Commission, and/or the County Coordinator of Indian Affairs. |
| **Hazards and Hazardous Materials** | |
| **HM-1**<br>**Comply with All Pesticide Application Restrictions and Policies** | Pesticide products are to be used only after an assessment has been made regarding environmental, economic, and public health aspects of each of the alternatives by the Valley Water Pest Control Advisor (PCA). All pesticide use will be consistent with approved product specifications. Applications will be made by, or under the direct supervision of, State Certified applicators under the direction of, or in a manner approved by the PCA. |
| **HM-2**<br>**Comply with All Pesticide Usage Requirements** | All projects that propose ongoing use of pesticides will comply with all provisions of Q751D02: Control and Oversight of Pesticide Use, including, but not necessarily limited to the following:<br><br>1. All pest control methods will be performed only after a written Pest Control Recommendation for use has been prepared by Valley Water's PCA in accordance with requirements of the California Food and Agricultural Code.<br><br>2. F751D01 – Pest Control Recommendation & Spray Operators Report will be completed for each pesticide application. |
| **HM-3[2]**<br>**Comply with Restrictions on Herbicide Use** | Consistent with provisions of Q751D02: Control and Oversight of Pesticide Use, only herbicides and surfactants registered for aquatic use will be applied within the banks of channels within 20 feet of any water present.<br><br>Furthermore, aquatic herbicide use will be limited to June 15 through October 31 with an extension through December 31 or until the first occurrence of local rainfall greater |

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| **in Aquatic Areas** | than 0.5 inches is forecasted within a 24-hour period from planned application events according to the National Weather Service. If rain is forecast, then application of aquatic herbicide will be rescheduled. |
| **HM-4**<br>**Restrict Vehicle and Equipment Cleaning to Appropriate Locations** | Vehicles and equipment may be washed only at approved areas. No washing of vehicles or equipment will occur in the Project area. |
| **HM-5**<br>**Ensure Proper Vehicle and Equipment Fueling and Maintenance** | No fueling or servicing will be done in a waterway or immediate flood plain, unless equipment stationed in these locations is not readily relocated (i.e., pumps, generators).<br>1. For stationary equipment that must be fueled or serviced on site, containment will be provided in such a manner that any accidental spill will not be able to come in direct contact with soil, surface water, or the storm drainage system.<br>2. All fueling or servicing done at the site will provide containment to the degree that any spill will be unable to enter any waterway or damage riparian vegetation.<br>3. All vehicles and equipment will be kept clean. Excessive build-up of oil and grease will be prevented.<br>4. All equipment used in the creek channel will be inspected for leaks each day prior to initiation of work. Maintenance, repairs, or other necessary actions will be taken to prevent or repair leaks, prior to use.<br>5. If emergency repairs are required in the field, only those repairs necessary to move equipment to a more secure location will be done in a waterway or flood plain. |
| **HM-6**<br>**Ensure Proper Hazardous Materials Management** | Measures will be implemented to ensure that hazardous materials are properly handled and the quality of water resources is protected by all reasonable means.<br>1. Prior to entering the work site, all field personnel will know how to respond when toxic materials are discovered.<br>2. Contact of chemicals with precipitation will be minimized by storing chemicals in watertight containers with appropriate secondary containment to prevent any spillage or leakage.<br>3. Petroleum products, chemicals, cement, fuels, lubricants, and non-storm drainage water or water contaminated with the aforementioned materials will not contact soil and not be allowed to enter surface waters or the storm drainage system.<br>4. All toxic materials, including waste disposal containers, will be covered when they are not in use, and located as far away as possible from a direct connection to the storm drainage system or surface water.<br>5. Quantities of toxic materials, such as equipment fuels and lubricants, will be stored with secondary containment that is capable of containing 110 percent of the primary container(s).<br>6. The discharge of any hazardous or non-hazardous waste as defined in CCR Division 2, Subdivision 1, Chapter 2 will be conducted in accordance with applicable State and federal regulations.<br>7. In the event of any hazardous material emergencies or spills, personnel will call the Chemical Emergencies/Spills Hotline at 1-800-510-5151. |

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| **HM-7**<br>**Utilize Spill Prevention Measures** | Prevent the accidental release of chemicals, fuels, lubricants, and non-storm drainage water following these measures:<br>1. Field personnel will be appropriately trained in spill prevention, hazardous material control, and cleanup of accidental spills;<br>2. Equipment and materials for cleanup of spills will be available on site, and spills and leaks will be cleaned up immediately and disposed of according to applicable regulatory requirements;<br>3. Field personnel will ensure that hazardous materials are properly handled and natural resources are protected by all reasonable means;<br>4. Spill prevention kits will always be in close proximity when using hazardous materials (e.g., at crew trucks and other logical locations), and all field personnel will be advised of these locations; and,<br>5. The work site will be routinely inspected to verify that spill prevention and response measures are properly implemented and maintained. |
| **HM-8**<br>**Incorporate Fire Prevention Measures** | 1. All earthmoving and portable equipment with internal combustion engines will be equipped with spark arrestors.<br>2. During the high fire danger period (April 1–December 1), work crews will have appropriate fire suppression equipment available at the work site.<br>3. An extinguisher shall be available at the project site at all times when welding or other repair activities that can generate sparks (such as metal grinding) is occurring.<br>4. Smoking shall be prohibited except in designated staging areas and at least 20 feet from any combustible chemicals or vegetation. |
| **Hydrology and Water Quality** | |
| **WQ-1**<br>**Limit Impact of Pump and Generator Operation and Maintenance** | Pumps and generators will be maintained and operated in a manner that minimizes impacts to water quality and aquatic species.<br>1. Pumps and generators will be maintained according to manufacturers' specifications to regulate flows to prevent dry-back or washout conditions.<br>2. Pumps will be operated and monitored to prevent low water conditions, which could pump muddy bottom water, or high-water conditions, which creates ponding.<br>3. Pump intakes will be screened to prevent uptake of fish and other vertebrates. Pumps will be screened according to National Marine Fisheries Service (NMFS) criteria.<br>4. Sufficient back-up pumps and generators will be on site to replace defective or damaged pumps and generators. |
| **WQ-2**<br>**Limit Impacts from Staging and Stockpiling Materials** | 1. To protect on site vegetation and water quality, staging areas should occur on access roads, surface streets, or other disturbed areas that are already compacted and only support ruderal vegetation. Similarly, all equipment and materials (e.g., road rock and spoils) will be contained within the existing access roads or other pre-determined staging areas.<br>2. Building materials and other Project-related materials, including chemicals and sediment, will not be stockpiled or stored where they could spill into water bodies.<br>3. No runoff from the staging areas may be allowed to enter water ways without being subjected to adequate filtration (e.g., vegetated buffer, swale, hay wattles or bales, silt screens). |

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| | 4. The discharge of decant water to water ways from any on site temporary sediment stockpile or storage areas is prohibited.<br>5. During the wet season, no stockpiled soils will remain exposed, unless surrounded by properly installed and maintained silt fencing or other means of erosion control. During the dry season; exposed, dry stockpiles will be watered, enclosed, covered, or sprayed with non-toxic soil stabilizers. |
| **WQ-3[2]**<br>**Use Seeding for Erosion Control, Weed Suppression, and Site Improvement** | Disturbed areas shall be seeded with native seed as soon as is appropriate after activities are complete. An erosion control seed mix will be applied to exposed soils down to the ordinary high-water mark (OHWM) of the flood basin and the mean high higher tide line on the Bay side of the work area.<br>The seed mix should consist of California native grasses, (for example Hordeum brachyantherum; Elymus glaucus; and annual Vulpia microstachyes) or annual, sterile hybrid seed mix (e.g., Regreen™, a wheat x wheatgrass hybrid). |
| **WQ-4**<br>**Maintain Clean Conditions at Work Sites** | The work site, areas adjacent to the work site, and access roads will be maintained in an orderly condition, free and clear from debris and discarded materials on a daily basis. Personnel will not sweep, grade, or flush surplus materials, rubbish, debris, or dust into storm drains or waterways.<br>Materials or equipment left on the site overnight will be stored as inconspicuously as possible and will be neatly arranged. Any materials and equipment left on the site overnight will be stored to avoid erosion, leaks, or other potential impacts to water quality<br>Upon completion of work, all building materials, debris, unused materials, concrete forms, and other construction-related materials will be removed from the work site. |
| **WQ-5[2]**<br>**Manage Drilling Materials** | All materials or waters generated during drilling will be safely handled, properly managed, and disposed of according to all applicable federal, State, and local statutes regulating such. In no case will these materials and/or waters be allowed to enter, or potentially enter waterways. Such materials/waters must not be allowed to move off the property where the work is being completed. |
| **WQ-6**<br>**Protect Groundwater from Contaminates via Drilling** | Any substances or materials that may degrade groundwater quality will not be allowed to enter any boring. Lubricants used on drill bits, drill pipe, or tremie pipe will not be comprised of oily or greasy substances or other materials that may degrade groundwater quality.<br>Well openings or entrances will be sealed or secured in such a way as to prevent the introduction of contaminants. |
| **WQ-7**<br>**Prevent Water Pollution** | Oily, greasy, or sediment laden substances or other material that originate from the Project operations and may degrade the quality of surface water or adversely affect aquatic life, fish, or wildlife will not be allowed to enter, or be placed where they may later enter, any waterway.<br>The Project will not increase the turbidity of any watercourse flowing past the construction site by taking all necessary precautions to limit the increase in turbidity as follows:<br>1. where natural turbidity is between 0 and 50 Nephelometric Turbidity Units (NTU), increases will not exceed 5 percent;<br>2. where natural turbidity is greater than 50 NTU, increases will not exceed 10 percent;<br>3. where the receiving water body is a dry creek bed or storm drain, waters in excess of 50 NTU will not be discharged from the project.<br>Water turbidity changes will be monitored. The discharge water measurements will be made at the point where the discharge water exits the water control system for |

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| | tidal sites and 100 feet downstream of the discharge point for non-tidal sites. Natural watercourse turbidity measurements will be made in the receiving water 100 feet upstream of the discharge site. Natural watercourse turbidity measurements will be made prior to initiation of project discharges, preferably at least 2 days prior to commencement of operations. |
| **WQ-8**<br>**Prevent Stormwater Pollution** | To prevent stormwater pollution, the applicable measures from the following list will be implemented:<br>1. Soils exposed due to Project activities will be seeded and stabilized using hydroseeding, straw placement, mulching, and/or erosion control fabric. These measures will be implemented such that the site is stabilized and water quality protected prior to significant rainfall. In creeks, the channel bed and areas below the OHWM are exempt from this BMP.<br>2. The preference for erosion control fabrics will be to consist of natural fibers; however, steeper slopes and areas that are highly erodible may require more structured erosion control methods. No non-porous fabric will be used as part of a permanent erosion control approach. Plastic sheeting may be used to temporarily protect a slope from runoff, but only if there are no indications that special-status species would be impacted by the application.<br>3. Erosion control measures will be installed according to manufacturer's specifications.<br>4. To prevent stormwater pollution, the appropriate measures from, but not limited to, the following list will be implemented:<br>• Silt Fences<br>• Straw Bale Barriers<br>• Brush or Rock Filters<br>• Storm Drain Inlet Protection<br>• Sediment Traps or Sediment Basins<br>• Erosion Control Blankets and/or Mats<br>• Soil Stabilization (i.e. tackified straw with seed, jute or geotextile blankets, etc.)<br>• Straw mulch.<br>5. All temporary construction-related erosion control methods shall be removed at the completion of the project (e.g. silt fences).<br>6. Surface barrier applications installed as a method of animal conflict management, such as chain link fencing, woven geotextiles, and other similar materials, will be installed no longer than 300 feet, with at least an equal amount of open area prior to another linear installation. |
| **WQ-9**<br>**Manage Sanitary and Septic Waste** | Temporary sanitary facilities will be located in compliance with California Division of Occupational Safety and Health (Cal/OSHA) regulation 8 CCR 1526. All temporary sanitary facilities will be located where overflow or spillage will not enter a watercourse directly (overbank) or indirectly (through a storm drain). |
| **Traffic and Transportation** | |
| **TR-1**<br>**Incorporate Public Safety Measures** | Fences, barriers, lights, flagging, guards, and signs will be installed as determined appropriate by the public agency having jurisdiction, to give adequate warning to the public of the construction and of any dangerous condition to be encountered as a result thereof. |

[1] BMP is not included in Valley Waters BMP handbook (2014) but is added to further protect the relevant resources during Project construction.

[2] BMP has been modified from the standard BMP text from Valley Water's BMP handbook (2014) to improve the BMPs applicability to the Project.

[3] This BMP has been updated from BMP CU-1 in Valley Water's BMP Handbook (2014) to provide more protective measures to avoid and minimize potential impacts on archeological artifacts, tribal cultural resources, and burial remains, consistent with the approach taken in other recent Valley Water projects.

# Project Design Development Process

Given the stream and riparian habitats the Project area, Valley Water undertook a thorough and iterative process to identify and develop a design such that construction and operations would minimize or avoid impacts on these resources. Bank repair methods considered in the development of the Project alternatives are based on the bank stabilization methods included in Valley Water's Stream Maintenance Program (SMP) Manual, as well as the Federal Highway Administrations Earth Retaining Structures Reference Manual (Publication No. FHWA-NHI-07-071, dated March 2011). Several design alternatives were considered in the Project development process, which are evaluated and described below.

## *Alternative A: Riprap Bank Protection*

Alternative A would involve the use of riprap bank protection at all 10 rehabilitation sites. The design at Sites 1 through 4, 6, and 7 would be the same under both Alternative A and Alternative B (the Proposed Project, as described in the Project description), and would generally involve riprap placed along the eroding creek bank up to the 1% flood elevation (generally 10 feet above the toe of the bank). The riprap would be installed at a 1.5:1 slope and therefore would result in encroachment into the channel to varying degrees, which would require realigning the centerline of the creek toward the opposite bank. At Site 5, the centerline of the creek would be shifted towards the west bank, causing the centerline of the creek to shift; it is possible that the east bank would need to be pushed back to maintain the channel capacity, and the bank may need to be armored with riprap. At Site 8, following the installation of riprap on the east bank, the west bank would be pushed back to maintain the channel capacity and armored with riprap. Due to the limited space at Sites 9 and 10, a sheet pile wall would be installed mid-way up the existing bank slope, and the bank would be rebuilt with riprap in front of the sheet pile wall along the creek. The bank above the sheet pile wall would be laid back at a 1.5:1 slope and vegetated, as it is under Alternative B (Proposed Project).

As compared to the Alternative B (Proposed Project), Alternative A would result in greater permanent impacts on Calabazas Creek (0.05 acre), riparian habitat (0.29 acre), and riparian trees (20 more trees removed). For these reasons, this alternative was rejected.

## *Alternative B (Proposed Project): Combination of Riprap and Sheet Pile Walls*

The design at Sites 1 through 4, 6, and 7 would be the same under both Alternative A and Alternative B, and generally involve riprap placed along the eroding creek bank up to 10 feet above the toe of the bank. Alternative B would utilize sheet pile walls at Sites 5, 8, 9, and 10 to avoid and minimize impacts on the stream and riparian habitat. At Sites 5 and 8, installation of a sheet pile wall in front of the existing vertical east bank slope would largely maintain the habitat in its present condition. At Site 8 and potentially Site 5, the use of a sheet pile wall would avoid

the need to push back and armor the west bank with riprap, as would be required under Alternative A.

At Sites 9 and 10, sheet pile walls are proposed mid-way into the bank (same as Alternative A), but the existing bank and vegetation would remain in place in front of the sheet pile walls (Alternative A involves installation of riprap in front of the sheet pile wall). Under Alternative B, the native material in front of the wall will likely continue to erode or establish at a new equilibrium. The timeline and severity of continued bank erosion in front of the wall is dependent on flows in subsequent years. When or if this erosion occurs, the channel will have more room to migrate (approximately 40 feet between bank walls where Sites 9 and 10 overlap), and potentially support stream benches with riparian vegetation (natural recruitment).

This alternative meets the Project purpose, is feasible, and results in the least impacts on the aquatic ecosystem (i.e., Calabazas Creek and adjacent riparian habitat).

### *Alternative C: Combination of Riprap and Crib Walls or Modular Gravity Walls*

Alternative C would be similar to Alternative B, as it would still utilize riprap at Sites 1 through 4, 6, and 7; however, rather than sheet pile walls at Sites 5, 8, 9, and 10, crib walls or modular gravity walls would be used. Crib and modular gravity walls would require an approximately 1:6 slope or flatter and need to be keyed in below the channel invert. In addition, crib and modular gravity walls require a wide foundation, roughly equal to the height of the wall. As a result, a temporary shoring (walls or beams that hold the bank in place) is required to install the walls, and the wide foundation would result in a larger construction footprint, approximately 22 to 25 feet wide depending on the site.

Crib retaining walls involve interlocking individual boxes made from pre-cast concrete. The boxes are filled with crushed stone or other coarse granular materials to form a free draining structure. The boxes, which are generally small, can be filled with dirt suitable for supporting planting areas, but due to their small size, can only establish grasses and other small plants. Modular gravity walls also involve interlocking individual boxes, but the opening in the boxes are on top, rather on the wall face, resulting in a concrete wall facing. Similar to crib walls, the openings in the boxes are filled with coarse granular material and dirt suitable for supporting small planter areas.

Use of either crib or modular gravity walls would result in encroachment into the creek channel due to the slope requirements and limited space above the top of bank. As such, realignment of the channel centerline would be required in some areas. Similar to Alternative A (Riprap Bank Protection), the bank opposite of the crib or modular wall at Site 8 would need to be pushed back and regraded to maintain the channel capacity. Cutting into the bank to establish crib or modular gravity walls further from the existing channel would push the work outside of the Valley Water right-of-way (ROW), requiring property acquisition.

This alternative would be cost-prohibitive and likely face public opposition associated with residential property acquisition. In order to install crib walls or modular gravity walls, this alternative would require acquisition of land from adjacent residential properties at Sites 5, 8, 9, and 10. Approximately 0.4 acre of land would need to be acquired from an estimated 27 residential properties. At Sites 5 and 8, property acquisition could be avoided by allowing the walls to encroach on the creek; however, this encroachment would result in impacts to the opposite bank as the creek would need to be realigned and the opposite bank laid back, resulting in more substantial impacts on the creek and riparian habitat when compared to Alternative B (impacts would be similar as under Alternative A, detailed in Table 8). For these reasons, this alternative

was rejected as impracticable when taking into consideration cost and logistics in light of overall project purposes.[1]

### *Alternative D: Concrete Trapezoidal or Rectangular Channel*

Alternative D would involve replacing the creek banks with concrete armoring to form a trapezoidal or rectangular channel. The channel armoring could either be continuous along the entire 0.7-mile length of channel in the Project area or be applied at the 10 erosion repair sites only. Installation of a concrete channel would require substantial excavation and grading of the creek bed and banks to achieve the appropriate channel geometry. All vegetation and natural substrates would be removed where concrete channel lining is installed.

This alternative would result in the elimination of all natural habitats and substrates in the area where the concrete is installed. The concrete channel would preclude groundwater infiltration, harm water quality, result in a loss of habitat for native species, and could increase stream velocities (and thereby increase erosion) in areas downstream of the concrete lining. Public and environmental regulatory agency opposition to this alternative is also expected to be significant. Furthermore, while a detailed financial evaluation has not been conducted, this alternative is anticipated to be cost-prohibitive. For these reasons, this alternative was rejected.

### *Alternative E: Lay Back Banks and Vegetate*

Alternative E relies on a natural approach to stabilizing the banks that seeks to accommodate creek processes in ways that alleviate erosive pressure involve laying back the eroding banks. This alternative would involve grading the banks to a stable slope (minimum 2:1 or flatter) and installing plantings on the new bank surface. The laid-back banks would be constructed of compacted earthen material and may be covered with an erosion control fabric. The new bank would keyed in below the channel invert for stability. After the new earthen banks are formed, the bank surface would be planted with native trees (e.g., willow stakes at the toe and oaks higher on the bank) and understory species. Laying back the creek banks would involve substantial grading and earth-moving to reconfigure the bank to the appropriate slope. Due to the narrow ROW limits, there is not adequate space to lay back the banks within the Valley Water ROW and property acquisition from adjacent residences would be required.

To properly lay back the banks in a manner suitable for planting, this alternative would require acquisition of land from adjacent residential properties. Approximately 0.4 acre of land would need to be acquired from an estimated 27 residential properties. Property acquisition would be cost-prohibitive (real estate and administrative costs) and would lead to significant opposition from the affected landowners. For these reasons, this alternative was rejected as impracticable when taking into consideration cost and logistics in light of overall project purposes.

### *Alternative F: Bioengineered Bank Protection*

Alternative F would involve bioengineered bank protection, which uses plants to stabilize erosion on channel banks. Bioengineered bank protection seeks to repair damage caused by erosion and slope failures; protect or enhance healthy, functioning systems; and ensure long term sustainability of the impaired area. Bioengineering options utilized could include cuttings placed perpendicular to the ground; installing a protective layer of fiber or live cuttings; or installing

[11] This alternative also is considered an infeasible CEQA alternative. Section 15364 of the CEQA Guidelines defines “feasible” to mean “capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.”

vegetated rock structures to protect the banks from future erosion. While these options would involve less earthen bank modification as under Alternative E (such that property acquisition is not required), recontouring of the banks to 1.5:1 to 1:1 slopes would still be required. Furthermore, if a geogrid is utilized, which is often required in bioengineered bank protection to provide the frictional force to counter the lateral load, the geogrid would extend well beyond the face of the slope, thereby requiring substantial excavation up the bank. This geogrid placement and excavation is likely to extend outside Valley Water's ROW limits.

This alternative fails to meet the Project purpose because bioengineered bank protection was determined to not adequately protect the banks based on the stream flow velocities, channel bed shear stress, deep incision, and flashy creek flows. This alternative may also require acquisition of private property outside the Valley Water ROW. For these reasons, this alternative was rejected as impracticable when taking into consideration cost and logistics in light of overall project purposes.

### *Alternative G: No Project*

The No Project Alternative involves allowing the existing creek bank erosion to continue, which is likely to be exacerbated during future storm flows. Under this alternative, damage to adjacent properties would be unrepaired and continue to worsen; erosion would continue to result in impacts on water quality and existing vegetation; and continual minor maintenance (e.g. tarping over eroding surfaces) would be required, where feasible.

This alternative fails to meet the Project purpose because it proposes to leave the bank failures in their current state and allow erosion to progress. This alternative would result in damage to adjacent properties, allow bank failure to continue unchecked, harm water quality and riparian habitat, and increase the need for on-going maintenance in the Project area. For these reasons, this alternative was rejected.

# Chapter 3
# Environmental Setting

## Project Location

The Project is located along Calabazas Creek, which runs northeast for 13 miles through Saratoga, San Jose, Cupertino, Santa Clara, and Sunnyvale. The section of Calabazas Creek in the Project area is located in Cupertino and spans 0.7 miles between Miller Avenue (downstream end) and Bollinger Road (upstream end) (**Figures 2-1 and 2-2**). Bollinger Avenue forms the border between Cupertino (to the north) and San Jose (to the south). All 10 bank rehabilitation sites occur on property owned by Valley Water. Limited vehicle and equipment access or staging may occur on adjacent public property owned by the City of Cupertino (i.e., Creekside Park).

## Surrounding Land Uses

The Project reach is bound by Miller Avenue to the north and Bollinger Avenue to the south. The Project area is primarily surrounded by single-family homes with backyard fences abutting the creek corridor. Creekside Park, which is owned and operated by the City of Cupertino, is located along the east side of the Project area for approximately 0.25-mile of the Project's length. Creekside Park features two large grass athletic fields, a playground, a small building for community events, restroom facilities, and a parking lot. A pedestrian bridge crosses Calabazas Creek just upstream of the confluence of Calabazas and Regnart Creeks, connecting Creekside Park to a trail running along the south side of Regnart Creek.

The City of Cupertino's General Plan land use map designates the areas surrounding the Project area primarily as Low Density Residential and Parks and Open Space, with limited areas of Low-Medium Density Residential and Medium Density Residential on the north end of the Project area (City of Cupertino 2019a).

## Physical Environment

The Project area on Calabazas Creek is experiencing several areas of bank failure and erosion. The Project area has a history of erosion issues and various bank repairs and riprap, log revetment walls, and sacked concrete line portions of the creek banks. The creek and riparian corridor ranges from 60 feet wide to 175 feet wide (averages approximately 110 feet wide) and is bound by backyard and park fences. Riparian vegetation in the Project area is moderately dense and comprised of a mixture of native, non-native, and invasive species. Regnart Creek, a trapezoidal concrete-lined channel, flows into Calabazas Creek at a right angle approximately 0.2 miles upstream from the downstream end of the Project area. There is no pedestrian access to the Project area; however, a pedestrian bridge crosses over Calabazas Creek at its confluence with Regnart Creek. A sewage line, owned and operated by the City of Sunnyvale, crosses over Calabazas Creek approximately 0.1-mile north of the southern end of the Project area. **Figure 3-1** shows representative photographs of the Project area.

**Figure 3-1.** Representative Photographs of the Project Area

*Site 1: Undercut existing concreted riprap at Miller Avenue.*

*Site 2: Confluence of Regnart and Calabazas Creek (scour hole).*

*Site 8: Vertical bank erosion and existing riprap.*

*Site 9: Bank erosion and existing sewer line crossing with log revetment.*

# Chapter 4
# Environmental Evaluation

In accordance with CEQA, the following Initial Study Checklist is an analysis of the Project's potential environmental effects to determine whether an Environmental Impact Report (EIR) is needed. Answers to the checklist questions provide factual evidence and Valley Water rationale for determinations of the potential significance of impacts resulting from the Project.

The Initial Study checklist shows that the Project may have potentially significant effects on biological resources and from noise. Mitigation measures have been proposed for the Project to reduce potential effects to less than significant levels; therefore, the proposed MND is consistent with CEQA Guidelines Section 15070.

## Environmental Checklist Form

| | |
|---|---|
| **1. Project Title:** | Calabazas Creek Bank Rehabilitation Project |
| **2. Lead Agency Name and Address:** | Santa Clara Valley Water District<br>5750 Almaden Expressway<br>San Jose CA 95118 |
| **3. Contact Person and Phone Number:** | Alex Hunt<br>(408) 630-3007 |
| **4. Project Location:** | The Project is located at 10 discrete sites spread along approximately 0.7-mile of Calabazas Creek between Miller Avenue (downstream end) and Bollinger Road (upstream end) in the City of Cupertino. |
| **5. Project Sponsor's Name and Address:** | Santa Clara Valley Water District<br>5750 Almaden Expressway<br>San Jose, CA 95118 |
| **6. General Plan Designation:** | Low Density Residential, Low-Medium Density Residential, Medium Density Residential, and Parks and Open Space (City of Cupertino 2019a) |
| **7. Zoning:** | Single Family Residential, Open Space/Park, Residential Duplex, Multiple Family Residential (City of Cupertino 2019b) |
| **8. Description of the Project:** | The Project would involve bank rehabilitation at 10 sites involving the use of riprap and sheet pile walls. |
| **9. Surrounding Land Uses and Setting:** | The Project area bound by Miller Avenue (north) and Bollinger Avenue (south), with low density residential and Creekside Park occurring to the east and west. |
| **10. Other public agencies whose approval is required:** | o RWQCB – Section 401 Water Quality Certification and Construction General Permit<br>o USACE – Section 404 Individual Permit<br>o CDFW – Streambed Alteration Agreement<br>o City of Cupertino – Encroachment Permit; Tree Removal Permit; Traffic Plan; Temporary Sign Permit |
| **11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code Section 21080.3.1?** | No California Native American tribes culturally affiliated with the Project area have requested consultation pursuant to PRC Section 21080.3.1. |

# Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this Project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

| | | |
|---|---|---|
| ☐ Aesthetics | ☐ Agriculture and Forestry Resources | ☐ Air Quality |
| ☒ Biological Resources | ☐ Cultural Resources | ☐ Energy |
| ☐ Geology and Soils | ☐ Greenhouse Gas Emissions | ☐ Hazards and Hazardous Materials |
| ☐ Hydrology and Water Quality | ☐ Land Use and Planning | ☐ Mineral Resources |
| ☒ Noise | ☐ Population and Housing | ☐ Public Services |
| ☐ Recreation | ☐ Transportation / Traffic | ☐ Tribal Cultural Resources |
| ☐ Utilities and Service Systems | ☐ Wildfire | ☐ Mandatory Findings of Significance |

## Determination:

On the basis of this initial evaluation:

| | |
|---|---|
| I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared. | ☐ |
| I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared. | ☒ |
| I find that the proposed project MAY have a significant effect on the environment and an ENVIRONMENTAL IMPACT REPORT is required. | ☐ |
| I find that the proposed project MAY have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed. | ☐ |
| I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required. | ☐ |

Signature

9/18/2020
Date

Alex Hunt
Associate Environnemental Planner
Valley Water

# Aesthetics

| Would the Project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Have a substantial adverse effect on a scenic vista? | ☐ | ☐ | ☐ | ☒ |
| b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway? | ☐ | ☐ | ☐ | ☒ |
| c) In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality? | ☐ | ☐ | ☒ | ☐ |
| d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? | ☐ | ☐ | ☐ | ☒ |

## Regulatory Setting

Aesthetic values are protected indirectly through a variety of federal, State, and local laws and programs. The federal government does not explicitly regulate visual quality but recognizes its importance and preserves aesthetic values through the National Park, National Wildlife Refuge, National Monument, and National Scenic Byway Systems. At the State level, aesthetic values are preserved through the establishment of State parks and preserves, and through the California Scenic Highway Program. In addition, although local jurisdictions are not required to address visual resources as a separate topic in their general plans, several of the required general plan elements—including land use, conservation, and open space—relate indirectly to the aesthetic issues faced by communities as they manage their growth. General plans may also contain additional elements on topics of concern to the local community; common themes that bear on aesthetics and visual resources include recreation and parks, community design, and heritage or cultural resources.

The Land Use/Community Design Element of the Cupertino General Plan includes polices intended to shape the aesthetic character of the City; however, these policies are not relevant to the Project as they pertain to city gateways, building design, and other urban characteristics.

## Existing Conditions

The Project occurs in the Calabazas Creek corridor and is primarily surrounded by single family residential properties with fenced backyards abutting the creek. Creekside Park, managed by the City of Cupertino, also borders the Project area along the east side of the creek for approximately 1,100 linear feet. The Project area is bound by Miller Avenue and Bollinger Road at the north and south ends respectively.

A vast majority of the Project area is not visible from any publicly accessible area. Views of the Project area are limited to pedestrian views from Miller Avenue and Bollinger Road, as well as a short pedestrian bridge (Creekside Trail) over Calabazas Creek at the confluence with Regnart

Creek. Views of the Project area from these locations are generally obscured by residential fences, surrounding riparian vegetation, the low elevation of the site, and the fact that the channel is deeply incised and difficult to view unless in the immediate proximity. There is no public access to the creek channel itself, where the Project area may be viewed more directly.

There are no scenic vistas or scenic resources such as rock outcroppings or historic buildings in the Project area. The nearest scenic highway to the Project area is California Highway 9 (CA-9), located approximately 3.5 miles west of the Project area (Caltrans 2019). The Project area is not visible from I-280 or any other scenic highways.

# Discussion

**a) Would the Project have a substantial adverse effect on a scenic vista?**

The Project area and vicinity do not include any scenic vistas, as the Project area is at low elevation in a developed residential area. Views toward the Project area are from private residences, Creekside Park, and abutting streets, and views from these areas are largely screened by vegetation and fencing. Project activities would occur within the incised creek channel and bank repairs would only minimally alter existing grades. The staging area in the northwest corner of Creekside Park would be adjacent to existing fencing and a multi-family residential property and would not affect any scenic vistas. The minimally relocated (no greater than 15 feet) electrical distribution pole at Site 6 would not substantially alter views in the area. Therefore, there would be **no impact** on scenic vistas.

**b) Would the Project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?**

The State Scenic Highways program, a provision of the Streets and Highways code, was established to preserve and enhance the natural beauty of California. CA-9 is the nearest designated state scenic highway to the Project area (Caltrans 2019). This roadway is approximately 3.5 miles west of the Project area, and the Project would not be visible from this highway. There are no Designated or Eligible State Scenic Highways within the Project viewshed; therefore, the Project would have **no impact** on scenic resources within a state scenic highway.

**c) Would the Project, in nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? If the Project is in an urbanized area, would the Project conflict with applicable zoning and other regulations governing scenic quality?**

The Project occurs in an urbanized setting, with public views of the Project area limited to Miller Avenue, Bollinger Road, the bridge crossing (Creekside Trail), and residential backyards. As such, most of the Project area is not publicly visible, and those views that are available are largely obscured by fencing, vegetation, and the incised creek channel. However, the staging area in Creekside Park would be visible from other parts of the park, but the presence of the staging area would not substantially degrade the visual character of the site given its small size and placement in the corner of the park along an existing fence and multi-family residential property. The staging area would only be present from April 15$^{th}$ through October 15$^{th}$ during the two years of construction.

Project activities would generally involve repair and reconstruction of eroding banks with only minor changes to existing grades. Most rehabilitated banks would remain natural in appearance (i.e., riprap with a soil covering). At Sites 5 and 8, an approximately 20-foot tall

metal sheet pile wall would be installed in front of the vertical earthen bank, which would modify the visual character of the bank. However, views of these sites are not available from any publicly accessible location. At Sites 9 and 10, the wall would be pressed in mid-bank, with only approximately 5 feet of the wall initially exposed. In time, the natural substrates and vegetation on the creek side of the wall may erode, exposing up to 12 feet of the wall, but the widening of the creek channel itself provides its own aesthetic values. The southern end of Sites 9 and 10 are partially visible from the sidewalk on Bollinger Road, but are obscured by their distance from these sites (150 to 700 feet north of the road), chain link fencing, and vegetation. As a result, bank rehabilitation work would not substantially degrade the existing visual character of the publicly available views of Calabazas Creek.

In addition to the bank rehabilitation work itself, an estimated 29 ~~32~~ trees would also be removed as part of the Project. These trees are approximately half native (primarily oaks) and half non-native or invasive, with a fairly even size distribution of trees between 2 inches diameter at breast height (DBH) to over 30 inches DBH. Eight of the 29 ~~32~~ trees are greater than 24 inches DBH. However, most of these trees would not be visible to the public. Removed trees would be replaced consistent with the City of Cupertino's tree ordinance (evaluated under *Biological Resources*, below). The only locations where vegetation removal would be partially visible from publicly accessible locations would be at Sites 9 and 10. However, these trees are over 150 feet from the viewpoint, behind chain link fencing, and shielded by trees that would remain in place. Furthermore, native trees (e.g., holly oak, elderberry, and cherry) and understory vegetation would be planted along the bank above the sheet pile wall, which would maintain the aesthetic quality of these areas.

Therefore, the Project would not substantially degrade the existing visual character or quality of the area and the impact would be **less than significant**.

**d) Would the Project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?**

Streetlights, vehicle head and taillights, and lighting associated with existing residential development provide sources of light and glare in the Project area and immediate vicinity. The Project would not construct new facilities or structures which could result in a new source of light or glare. Construction activities would occur during daylight hours only and temporary construction lighting would not be necessary. Therefore, the Project would not create a new source of substantial light or glare and would not adversely affect day or nighttime views in the area. There would be **no impact**.

# Agriculture and Forestry Resources

| Would the Project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? | ☐ | ☐ | ☐ | ☒ |
| b) Conflict with existing zoning for agricultural use, or a Williamson Act contract? | ☐ | ☐ | ☐ | ☒ |
| c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in PRC Section 12220(g)), timberland (as defined by PRC Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))? | ☐ | ☐ | ☐ | ☒ |
| d) Result in the loss of forest land or conversion of forest land to non-forest use? | ☐ | ☐ | ☐ | ☒ |
| e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use? | ☐ | ☐ | ☐ | ☒ |

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation (CDC) as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the State's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board (CARB).

## Regulatory Setting

### Farmland Mapping and Monitoring Program

The CDC maintains the Farmland Mapping and Monitoring Program (FMMP), which is the only statewide agricultural land use inventory conducted on a regular basis to monitor changes in agricultural use. Farmlands are divided into the following categories based on their suitability for agriculture: prime farmland, farmland of statewide importance, unique farmland, farmland of local importance, grazing land, and other lands. Additional categories used in the FMMP mapping system include urban and built-up lands, and lands committed to non-agricultural use.

### California Land Conservation Act of 1965 (Williamson Act)

The California Land Conservation Act of 1965, also known as the Williamson Act, is the State's principal agricultural land protection program. The Williamson Act provides a property tax

incentive for the voluntary enrollment of agricultural and open space lands in contracts between local government and landowners. The contract, which last a minimum of 10 years, restricts the land to agricultural and open space uses and compatible uses defined in State law and local ordinances.

## Existing Conditions

The Project is surrounded by residential and public park land uses, and agricultural lands are absent from the Project area and vicinity. The nearest agricultural area is over 3 miles west of the Project area. The Project area is not subject to an existing Williamson Act contract (CDC 2016a) and is not zoned for agricultural use by the City of Cupertino. The Project area is classified as urban and built-up land under the FMMP. Urban and Built-Up Land is characterized by structures with a building density of at least 1 unit to 1.5 acres, or approximately 6 structures to a 10-acre parcel. Common examples of urban and built-up land include residential, industrial, commercial, institutional facilities, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, and water control structures (CDC 2016b). Similarly, the Project area does not qualify as a forest resource.

## Discussion

**a) Would the Project convert prime farmland, unique farmland, or farmland of statewide importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?**

No prime farmland, unique farmland, or farmland of statewide importance is located in the Project area. Therefore, no conversion of prime farmland, unique farmland, or farmland of statewide importance to other uses would occur from Project implementation. There would be **no impact**.

**b) Would the Project conflict with existing zoning for agricultural use, or a Williamson Act contract?**

The Project area is located on a creek corridor owned by Valley Water and is not a part of any Williamson Act contract (CDC 2016). Given the surrounding development, the Project would not result in farmland conversion, conflict with a Williamson Act contract, or conflict with existing agricultural zoning. **No impact** would occur.

**c) Would the Project conflict with existing zoning for, or cause rezoning of, forest land (as defined in PRC Section 12220(g)), timberland (as defined by PRC Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?**

The Project area is located in a narrow riparian corridor abutted by residential development and a public park. No forest land as defined in PRC Section 12220(g), or timberland as zoned by Government Code Section 51104(g) is located in the Project area. Therefore, **no impact** would occur.

**d) Would the Project result in the loss of forest land or conversion of forest land to non-forest use?**

The project site is not located on forest land, timberland, or timberland zoned as Timberland Production. Therefore, **no impact** would occur.

While the Project does occur in a narrow riparian forest, the Project would not convert forest land to non-forest use. The project site is not located on timberland or land zoned for timberland production. Therefore, **no impact** would occur.

**e) Would the Project involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland to non-agricultural use or conversion of forest land to non-forest use?**

See discussions under “a” and “c” above. **No impact** would occur.

# Air Quality

| Would the Project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Conflict with or obstruct implementation of applicable air quality plans? | ☐ | ☐ | ☐ | ☒ |
| b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard? | ☐ | ☐ | ☒ | ☐ |
| c) Expose sensitive receptors to substantial pollutant concentrations? | ☐ | ☐ | ☒ | ☐ |
| d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people? | ☐ | ☐ | ☒ | ☐ |

# Regulatory Setting

The U.S. Environmental Protection Agency (EPA) and CARB regulate direct emissions from motor vehicles. The Bay Area Air Quality Management District (BAAQMD) is the regional agency primarily responsible for regulating air pollution emissions from stationary sources (e.g., factories) and indirect sources (e.g., traffic associated with new development), as well as monitoring ambient pollutant concentrations.

## Federal Clean Air Act

The federal Clean Air Act (CAA) of 1970 authorized the establishment of national health-based air quality standards and also set deadlines for their attainment. The CAA Amendments of 1990 changed deadlines for attaining national standards as well as the remedial actions required of areas of the nation that exceed the standards. Under the CAA, State and local agencies in areas that exceed the national standards are required to develop State Implementation Plans to demonstrate how they will achieve the national standards by specified dates.

## California Clean Air Act

In 1988, the California Clean Air Act (CCAA) required that all air districts in the State endeavor to achieve and maintain California Ambient Air Quality Standards for carbon monoxide (CO), ozone, sulfur dioxide ($SO_2$), nitrogen dioxide ($NO_2$), and suspended particulate matter (PM) by the earliest practical date. The CCAA provides districts with authority to regulate indirect sources and mandates that air quality districts focus particular attention on reducing emissions from transportation and area-wide emission sources. Each nonattainment district is required to adopt a plan to achieve a 5 percent annual reduction, averaged over consecutive 3-year periods, in district-wide emissions of each nonattainment pollutant or its precursors. A Clean Air Plan shows how a district would reduce emissions to achieve air quality standards. Generally, the State standards for these pollutants are more stringent than the national standards.

## Bay Area Air Quality Management District

In June 2010, the BAAQMD adopted significance thresholds for agencies to use to assist with environmental review of projects under CEQA. These thresholds were designed to establish the

level at which the BAAQMD believed air pollutant emissions would cause significant impacts under CEQA. A decision by the California Supreme Court in late 2015 confirmed that local agencies may rely on BAAQMD's thresholds when analyzing project impacts on air quality.

As outlined in the current BAAQMD Air Quality Guidelines (BAAQMD 2017), the first step in determining the significance of construction-related criteria air pollutants and precursors is to compare the attributes of a project with the applicable screening criteria listed in Chapter 3 of the Air Quality Guidelines. If all of the screening criteria are met by a proposed project, then the lead agency would not need to perform a detailed air quality assessment of its project's air pollutant emissions, and the lead agency may conclude that the project would not result in a significant impact to air quality.

This preliminary screening provides the lead agency with a conservative indication of whether the project would result in the generation of construction-related criteria air pollutants and/or precursors that exceed the thresholds of significance for construction-related criteria air pollutants and precursors, as shown in **Table 4-1**.

**Table 4-1.** Thresholds of Significance for Construction-Related Criteria Air Pollutants/Precursors

| Pollutant/Precursor | Daily Average Emissions (lbs/day) |
|---|---|
| ROG | 54 |
| $NO_x$ | 54 |
| $PM_{10}$ | 82* |
| $PM_{2.5}$ | 54* |

Notes:
* Applies to construction exhaust emissions only.
$NO_x$ = oxides of nitrogen
$PM_{2.5}$ = fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less.
$PM_{10}$ = respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less
ROG = reactive organic gases
Source: BAAQMD 2017

# Existing Conditions

The Project area is located within the San Francisco Bay Air Basin, which is under the jurisdiction of the BAAQMD. Regional and local air quality in the basin is impacted by topography, dominant airflows, atmospheric inversions, location, and season.

Both the State and federal government have established health-based Ambient Air Quality Standards for six criteria air pollutants including CO, ozone, $NO_2$, $SO_2$, lead, and suspended PM. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety. Reactive organic gases (ROG) are formed from combustion of fuels and evaporation of organic solvents. ROGs are an ozone precursor and a prime component of the photochemical reaction that forms ozone. $NO_x$ (compounds of $NO_2$), a reddish-brown gas, and nitric oxide (NO), a colorless and odorless gas, are formed from fuel combustion under high temperature or pressure. $NO_x$ is a primary component of the photochemical smog reaction. Fine suspended PM with an aerodynamic diameter of 2.5 microns or less is referred to as $PM_{2.5}$; PM with coarse particles that are larger than 2.5 microns but smaller than 10 microns is referred to as $PM_{10}$.

Toxic air contaminants (TACs) are a defined set of airborne pollutants that may pose a present or potential hazard to human health. A wide range of sources from industrial plants to motor vehicles emit TACs. TACs are generally regulated through State and local risk management

programs designed to eliminate, avoid, or minimize the risk of adverse health effects from exposure to TACs. One TAC of concern for the Project is diesel particulate matter (DPM). TACs are regulated by CARB with various airborne toxic control measures, which are aimed at minimizing the risk of exposure.

### Sensitive Receptors

Those who are considered sensitive to air pollution include children, the elderly, and persons with pre-existing respiratory or cardiovascular illness. Therefore, sensitive receptors are defined as residential uses, schools, daycare centers, nursing homes, and medical centers. Single- and multi-family residences are considered sensitive receptors, which occur adjacent to a majority of the Project area. Aside from these residences, the nearest sensitive receptors to the Project area include the Purglen of Cupertino Assisted Living Facility located approximately 550 feet east of the Project area, the Kaiser Permanente Hospital located 0.25-mile north, and three schools located between 0.2- and 0.3-mile east.

### Attainment Status

CARB is required to designate areas of the State as attainment, nonattainment, or unclassified for all State standards. An attainment designation for an area signifies that pollutant concentrations did not violate the standard for that pollutant in that area. A nonattainment designation indicates that a pollutant concentration violated the standard at least once, excluding those occasions when a violation was caused by an exceptional event, as defined in the criteria. An unclassified designation signifies that data does not support either an attainment or nonattainment status. The CCAA divides districts into moderate, serious, and severe air pollution categories, with increasingly stringent control requirements mandated for each category.

The EPA also designates areas as attainment, nonattainment, or classified. The San Francisco Bay Area is classified as non-attainment under the State and federal 8-hour ozone standard; non-attainment for both the annual arithmetic mean and the 24-hour standard for course PM ($PM_{10}$) standard under the State standard; and non-attainment for fine PM ($PM_{2.5}$) under the annual arithmetic mean under the State standard and non-attainment under the federal 24-hour standard.

The Project area is located in a nonattainment area for the State and federal 8-hour ozone standard; both the annual arithmetic mean and the 24-hour standard for $PM_{10}$ under the State standard; and for $PM_{2.5}$ under the annual arithmetic mean under the State standard and non-attainment under the federal 24-hour standard.

## Discussion

This air quality impact analysis considers construction-related impacts to air quality associated with the Project against the BAAQMD thresholds of significance. Equipment, trucks, worker vehicles, and ground-disturbing activities associated with Project construction and maintenance would generate temporary emissions of criteria air pollutants and precursors.

**a) Would the Project conflict with or obstruct implementation of applicable air quality plans?**

The most recently adopted BAAQMD air quality plan is the Spare the Air – Cool the Climate 2017 Clean Air Plan (2017 Plan). The 2017 Plan focuses on two closely-related goals: protecting impacted communities and promoting social equity, and protecting the climate. Consistency with the 2017 Plan can be determined if a project does the following: 1) supports the goals of the 2017 Plan; 2) includes applicable control measures from the 2017 Plan; and 3) would not disrupt or hinder implementation of any control measures from the 2017 Plan.

Project consistency with the mobile source measures, land use and local impact measures, and energy measures is described below:

- *Mobile Source and Transportation Control Measures*. The BAAQMD identifies control measures as part of the 2017 Plan to reduce ozone precursor emissions from stationary, area, mobile, and transportation sources. The Transportation Control Measures are designed to reduce emissions from motor vehicles by reducing vehicle trips and vehicle miles traveled (VMT) in addition to vehicle idling and traffic congestion. The Project would rehabilitate eroding banks in 10 locations with the use of riprap or sheet pile walls. There would be no increase in VMT as a result of this Project, as the Project would not generate additional vehicle trips aside from construction-related trips. Therefore, the Project would not conflict with the transportation and mobile source control measures from the 2017 Plan.
- *Land Use and Local Impacts Measures*. The 2017 Plan includes Land Use and Local Impacts Measures to achieve the following: promote mixed-use, compact development to reduce motor vehicle travel and emissions; and ensure that planned growth is focused in a way that protects people from exposure to air pollution from stationary and mobile sources of emissions. The Project would not conflict with the Land Use and Local Impacts Measures identified in the 2017 Plan as the Project does not modify land use or induce growth.
- *Energy and Climate Measures*. The 2017 Plan also includes Energy and Climate Measures, which are designed to reduce ambient concentrations of criteria pollutants and reduce emissions of carbon dioxide ($CO_2$). Implementation of these measures is intended to promote energy conservation and efficiency in buildings, promote renewable forms of energy production, reduce the “urban heat island” effect by increasing reflectivity of roofs and parking lots, and promote the planting of trees with low volatile organic compound (VOC) emissions to reduce biogenic emissions, lower air temperatures, provide shade, and absorb air pollutants. The energy measures of the 2017 Plan are not applicable to the Project, as the Project would not include the construction of any buildings or parking lots.

As discussed above, implementation of the Project would not disrupt or hinder implementation of the applicable measures outlined in the 2017 Plan, including Mobile Source and Transportation Control Measures, Land Use and Local Impacts Measures, and Energy and Climate Measures. Therefore, there would be **no impact**.

**b) Would the Project result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or State ambient air quality standard?**

## Construction Emissions

Project construction would result in tailpipe emissions from construction vehicles and equipment, as well as fugitive dust generated by ground-disturbing activities. Construction emissions were calculated using the California Emissions Estimator Model (CalEEMod; Version 2016.3.2) to document the anticipated emissions (**Appendix B**). Estimated maximum daily construction emission with BMPs implemented are summarized in **Table 4-2**.[2]

During Project construction, short-term degradation of air quality may occur due to the release of particulate emissions generated by construction activities. In addition to dust-related $PM_{10}$ emissions, heavy trucks and construction equipment powered by gasoline and diesel engines would generate CO, $NO_x$, ROGs, and some soot particulate ($PM_{2.5}$ and $PM_{10}$) in exhaust emissions. If construction temporarily increased traffic in the vicinity of the Project area, CO and other emissions from traffic would increase slightly. These emissions would be temporary and limited to the immediate area surrounding construction activities. BMP AQ-1 (*Use Dust Control Measures*) and AQ-3 (*Reduce Construction-related $NO_X$ Emissions*) would reduce short-term air quality impacts, though the effect of these measures has not been accounted for in the emissions presented in **Table 4-2**.

As shown in **Table 4-2**, Project construction would not generate maximum daily emissions exceeding the significance thresholds in any year of construction. As a result, potential impacts associated with construction emissions would be **less than significant**. Because the emissions shown in Table 4-2 do not incorporate implementation of BMP AQ-1 and BMP AQ-3, the emissions from the Project are expected to be even lower than the figures shown in Table 4-2.

**Table 4-2.** Construction Emissions without BMPs Incorporated

| | Construction Emissions (pounds/day) | | | | | | |
|---|---|---|---|---|---|---|---|
| **Construction Year** | **ROGs[a]** | **$NO_X$[a]** | **CO** | **$PM_{10}$ Fugitive Dust** | **$PM_{10}$ Exhaust** | **$PM_{2.5}$ Fugitive Dust** | **$PM_{2.5}$ Exhaust** |
| 2022 ~~2021~~ | 0.6 | 6.7 | 4.28 | 0.3 | 0.3 | 0.2 | 0.3 |
| 2023 ~~2022~~ | 0.5 | 4.6 | 4.28 | 0.3 | 0.2 | 0.2 | 0.3 |
| **Significance Thresholds** | **54** | **54** | **N/A[b]** | **BMPs** | **82** | **BMPs** | **54** |
| **Exceed Thresholds?** | **No** | **No** | **-** | **-** | **No** | **-** | **No** |

[a] ROGs and $NO_X$ are ozone precursors.
[b] The BAAQMD does not establish significance thresholds for CO emissions during construction.

## Operational Emissions

Operational emissions impacts are long-term air emission impacts associated with area sources and mobile sources involving any change related to the Project. Once construction is complete, there could be minor and infrequent maintenance of the bank rehabilitation work

[2] After the draft MND was released, minor refinement of the Project description resulted in slightly less area of earth disturbance and excavation/backfill required to construct the Project. While the estimated number of construction haul trips would remain unchanged, the emissions from the use of heavy equipment would be slightly reduced. Accordingly, it was not necessary to update the emissions modeling or the air quality analysis in the Final MND.

(e.g., fence repair, minor riprap corrections, plant maintenance). This work is expected to be less frequent and smaller in scale than maintenance work currently occurring in the Project reach, as the Project would rehabilitate the primary deficiencies in the area. Therefore, potential impacts from operational emissions would be **less than significant**.

### Localized Carbon Monoxide

The Project would not conflict with the Santa Clara Valley Transportation Authority's (VTA) Congestion Management Plan or other agency plans with oversee localized CO emissions. Therefore, the Project would not result in localized CO concentrations that exceed State or federal standards, and the impact would be **less than significant**.

**c) Would the Project expose sensitive receptors to substantial pollutant concentrations?**

Sensitive receptors are defined as residential uses, schools, daycare centers, nursing homes, and medical centers. Individuals particularly vulnerable to DPM and substantial pollutant concentrations are children, whose lung tissue is still developing, and the elderly, who may have serious health problems that can be aggravated by exposure to DPM. Exposure from diesel exhaust associated with construction activity could contribute to both cancer and chronic non-cancer health risks.

During construction, various diesel-powered vehicles and equipment would be used. In 1998, CARB identified PM from diesel-fueled engines as a TAC. CARB has completed a risk management process that identifies potential cancer risks for a range of activities using diesel-fueled engines. High volume freeways, stationary diesel engines, and facilities attracting heavy and constant diesel vehicle traffic (e.g., distribution centers and truck stops) were identified as having the highest associated risk.

Health risks from TACs are a function of both concentration and duration of exposure. Unlike the above types of sources, construction diesel emissions are temporary, affecting an area for a limited period of time, whereas health risks are based on a 70-year risk duration. Additionally, construction-related emissions sources are mobile and transient in nature and are limited to the Project area. The nearest sensitive receptors to the Project area include the single- and multi-family residences located adjacent to the Project area, the Purglen of Cupertino Assisted Living Facility located approximately 550 feet east, the Kaiser Permanente Hospital located 0.25-mile north, and three schools located between 0.2- and 0.3-mile east.

Project construction would be phased over two construction seasons spanning from mid-April through mid-October for a total of up to 12 months. The construction period is considered short relative to the 70-year health risk exposure analysis period. In addition, as shown in **Table 4-2**, Project construction $PM_{10}$ exhaust emissions (the primary source of construction TAC emissions) would not exceed 0.3 pounds per day in any given year, which is well below the BAAQMD's threshold for $PM_{10}$ exhaust emissions of 84 pounds per day. Because maintenance work would be minor and infrequent, emissions from maintenance would be negligible. Therefore, impacts to sensitive receptors from DPM and TACs would be **less than significant**.

**d) Would the Project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?**

Odors are generally regarded as an annoyance rather than a health hazard and the ability to detect odors varies considerably and is considered subjective. During construction, limited

odors may occur from equipment exhaust or spoils generated during construction. Adjacent residences or park users are the most likely receptor of such odors, but impacts from odors would be minor given the short-term duration of work at any given location, the distances from the emissions sources to receptors, and shielding by fencing, creek banks, and vegetation. In addition, BMP AQ-2 (*Avoid Stockpiling Odorous Materials*) would require that odorous materials are handled in a manner that avoids impacting the surrounding receptors. Therefore, the Project would not create objectionable odors affecting a substantial number of people and the impact would be **less than significant**.

# Biological Resources

| Would the Project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? | ☐ | ☒ | ☐ | ☐ |
| b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? | ☐ | ☒ | ☐ | ☐ |
| c) Have a substantial adverse effect on State or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? | ☐ | ☐ | ☐ | ☒ |
| d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? | ☐ | ☐ | ☒ | ☐ |
| e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? | ☐ | ☒ | ☐ | ☐ |
| f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan? | ☐ | ☐ | ☐ | ☒ |

An evaluation of potential impacts to biological resources within the Project area is based on a Biological Site Assessment prepared by the Valley Water, Environmental Mitigation and Monitoring Unit in August 2020 to evaluate potential impacts to sensitive biological resources associated with the Project (**Appendix C**). An Aquatic Resources Delineation Report was prepared by WRA, Inc. (**Appendix D**).

# Regulatory Setting

Biological resources in the Project area are protected by numerous federal, State, and local regulations, including the Federal Endangered Species Act (ESA), Migratory Bird Treaty Act, the California Endangered Species Act (CESA) and other regulations under the California Fish and Game Code (F&G Code), the California Native Plant Protection Act (CNPPA), and the City of Cupertino Tree Ordinance.

## Federal

### *Endangered Species Act*

FESA (16 U.S. Government Code (USC) Section 1531 et seq.) protects fish and wildlife species that are listed as threatened or endangered and their habitats. Endangered refers to species, subspecies, or distinct population segments that are in danger of extinction in all or a significant portion of their range. Threatened refers to species, subspecies, or distinct population segments that are considered likely to become endangered in the future. FESA is administered by the United States Fish and Wildlife Service (USFWS) for terrestrial and freshwater species and by NMFS for marine and anadromous species. FESA prohibits “take” of any fish or wildlife species listed by the federal government as endangered or threatened.

Section 7 of the FESA requires federal agencies to consult with the USFWS and/or NMFS, as appropriate, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of critical habitat. Section 9 prohibits the take of any plant, fish, or wildlife species listed under FESA as endangered, unless otherwise authorized by federal regulations. Section 10 establishes a process by which private parties can obtain permission for incidental take permits for unintended take that may occur during projects, such as through habitat conservation plans (HCP).

### *Migratory Bird Treaty Act*

The MBTA (16 USC Section 703–712 et seq.) enacted the provisions of treaties between the United States, Great Britain, Mexico, Japan, and the Soviet Union, and authorizes the U.S. Secretary of the Interior to protect and regulate take of migratory birds. The MBTA is administered by USFWS. It establishes seasons and bag limits for hunted species, and renders taking, possession, import, export, transport, sale, purchase, and barter of migratory birds, their occupied nests, and their eggs illegal except where authorized under the terms of a valid federal permit. Activities for which permits may be issued include scientific collecting; falconry and raptor propagation; “special purposes,” which include rehabilitation, education, migratory game bird propagation, and miscellaneous other activities; control of depredating birds; taxidermy; and waterfowl sale and disposal. More than 800 species of birds are protected under the MBTA. Specific definitions of “migratory bird” are discussed in each of the international treaties; in general, however, species protected under the MBTA are those that migrate to complete different stages of their life history or to take advantage of different habitat opportunities during different seasons.

### *Bald and Golden Eagle Protection Act*

The Bald and Golden Eagle Protection Act (16 USC 668 et seq.) makes it unlawful to import, export, take, sell, purchase, or barter any bald eagle or golden eagle, or their parts, products, nests, or eggs. Take includes pursuing, shooting, poisoning, wounding, killing, capturing, trapping, collecting, molesting, or disturbance. Exceptions may be granted by the USFWS for scientific or

exhibition use, or for traditional and cultural use by Native Americans. However, no permits may be issued for import, export, or commercial activities involving eagles.

### *Clean Water Act Section 404*

The CWA (33 USC 1251 et seq.) is the primary federal law protecting the quality of the nation's surface waters, including wetlands. Under Section 404, the USACE and EPA regulate the discharge of dredged and fill materials into the waters of the United States. Project sponsors must obtain a permit from USACE for discharges of dredged or fill materials into jurisdictional waters over which USACE determines that it will exert jurisdiction.

The USACE issues two types of permits under Section 404: general permits (either nationwide permits or regional permits) and standard permits (either letters of permission or individual permits). General permits are issued by the USACE to streamline the Section 404 process for nationwide, statewide, or regional activities that have minimal direct or cumulative environmental impacts on the aquatic environment. Standard permits are issued for activities that do not qualify for a general permit (i.e., that may have more than a minimal adverse environmental impact).

### *Clean Water Act Section 401*

Section 401 of the CWA requires that an applicant pursuing a federal permit to conduct an activity that may result in a discharge of a pollutant obtain a Water Quality Certification (or waiver). A Water Quality Certification requires the evaluation of water quality considerations associated with dredging or placement of fill materials into waters of the United States. In 2019, the SWRCB adopted the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State under the Porter-Cologne Water Quality Control Act. The Procedures were intended to update and clarify the extent of waters of the State, and establish/update regulatory review requirements. The Procedures consist of four major elements: 1) a wetland definition; 2) a framework for determining if a feature that meets the wetland definition is a water of the State; 3) wetland delineation procedures; and 4) procedures for the submittal, review and approval of applications for Water Quality Certifications and Waste Discharge Requirements for dredge or fill activities. The Procedures became effective on May 28, 2020. Water Quality Certifications and Waste Discharge Requirements are issued by one of the nine geographically separated Regional Water Quality Control Boards in California. The Project falls within the jurisdiction of the San Francisco Bay RWQCB.

Valley Water would be required to obtain a Water Quality Certification and/or Waste Discharge Requirements for Project construction activities that involve disturbance or placement of dredged or fill material within waters of the United States/State.

## State

### *California Endangered Species Act*

CESA protects wildlife and plants listed as threatened and endangered by the California Fish and Game Commission, as well as species identified as candidates for such listing. It is administered by CDFW. CESA requires State agencies to conserve threatened and endangered species and thus restricts all persons from taking listed species except under certain circumstances. CESA defines take as any action or attempt to "hunt, pursue, catch, capture, or kill." Under certain circumstances, CDFW may authorize limited take, except for species designated as fully protected (see discussion of fully protected species under *California Fish and Game Code* below). The requirements for an application for an incidental take permit under CESA are described in F&G Code Section 2081 of the and in final adopted regulations for implementing Sections 2080 and 2081.

### *California Species of Special Concern*

A Species of Special Concern (SSC) is a species, subspecies, or distinct population of an animal native to California that currently satisfies one or more of the following (not necessarily mutually exclusive) criteria:

- is extirpated from the State or, in the case of birds, is extirpated in its primary season or breeding role;
- is listed as federally, but not State, threatened or endangered;
- meets the State definition of threatened or endangered but has not formally been listed;
- is experiencing, or formerly experienced, serious (noncyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for State threatened or endangered status;
- has naturally small populations exhibiting high susceptibility to risk from any factor(s), that if realized, could lead to declines that would qualify it for State threatened or endangered status.

CDFW uses the administrative designation of SSC to achieve conservation and recovery of these animals before they meet the CESA criteria for listing. This administrative designation carries no formal legal status; however, the following analysis also considers Project impacts to designated SSC.

### *California Fish and Game Code*

The California F&G Code provides protection from take for a variety of species, separate from and in addition to the protection afforded under CESA. The F&G Code defines take as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” Species identified in the F&G Code as fully protected may not be taken except for scientific research. Fully protected species are listed in various sections of the Code. For instance, fully protected birds in general are protected under Section 3511, nesting birds under Sections 3503.5 and 3513, and eggs and nests of all birds under Section 3503. Birds of prey are addressed under Section 3503.5. All other birds that occur naturally in California and are not resident game birds, migratory game birds, or fully protected birds are considered non-game birds and are protected under Section 3800. Section 3515 lists protected fish species and Section 5050 lists protected amphibians and reptiles. Section 4700 identifies fully protected mammals.

F&G Code Section 1602 requires an entity to notify CDFW before commencing an activity that will: 1) substantially divert or obstruct the natural flow, or substantially change or use any material from the bed, channel or bank of any river, stream, or lake; or 2) deposit or dispose of debris, waste or other material where it may pass into any river, stream, or lake.

### *California Native Plant Protection Act*

The CNPPA (Sections 1900 and 1913) requires all State agencies to utilize their authority to carry out programs to conserve endangered and rare native plants. It gives CDFW the power to designate native plants as endangered or rare and to protect endangered and rare plants from take.

## Local

### *City of Cupertino Municipal Code - Protected Trees*

Chapter 14.18 of the City of Cupertino Municipal Code contains regulations for the protection, preservation, and maintenance of trees of certain species and sizes (City of Cupertino 2019c). Removal of a protected tree requires a permit from the City. "Protected" trees include trees of a certain species and size in all zoning districts; heritage trees in all zoning districts; any tree required to be planted or retained as part of an approved development application, building permit, tree removal permit, or code enforcement action in all zoning districts; and approved privacy protection planting in R-1 zoning districts. Protected trees include heritage trees and as "mature specimen trees." Heritage trees include "any tree or grove of trees which, because of factors including, but not limited to, its historic value, unique quality, girth, height or species, has been found by the Planning Commission to have a special significance to the community." Mature specimen trees include the following species that have a minimum single trunk diameter of 12 inches or a minimum multi-trunk diameter of 24 inches measured as 4.5 feet from the natural grade (also known as diameter at breast height, or DBH): native oak tree species (*Quercus* spp.), including coast live oak (*Quercus agrifolia*), valley oak (*Quercus lobata*), black oak (*Quercus kelloggii*), blue oak (*Quercus douglasii*), and interior live oak (*Quercus wislizeni*); California buckeye (*Aesculus californica*); big leaf maple (*Acer macrophyllum*); deodar cedar (*Cedrus deodara*); blue atlas cedar (*Cedrus atlantica* 'Glauca'); bay laurel or California bay (*Umbellularia californica*); and western sycamore (*Platanus racemosa*).

Although Valley Water is not subject to local tree regulations,[3] it will voluntarily comply with applicable requirements in the City's tree ordinance including obtaining a permit before tree removal and complying with the permit conditions.

# Existing Conditions

The Project area includes Calabazas Creek and riparian corridor up to the abutting fence lines between Miller Avenue and Bollinger Road. Calabazas Creek has a narrow riparian corridor that is constrained by surrounding residential development and is defined by steeply incised banks. Calabazas Creek in the Project area is highly modified and disturbed, with some remnant native overstory vegetation and a sparse understory comprised almost entirely of exotic species. The creek channel banks are highly eroded in many locations, and the remnant riparian corridor is thin and narrow due to encroachment from the adjacent residential area.

Information on land cover types, vegetation, and habitat conditions in the Project area were obtained during pedestrian reconnaissance-level surveys conducted by Valley Water and WRA, Inc. biologists. Valley Water Wildlife Biologist Shawn Lockwood conducted field surveys at the Project site on November 5 and 15, 2018, March 26, 2019, and May 29, 2019 (Sites 9 and 10 only). Senior Plant Ecologist Janell Hillman conducted a rare plant survey on November 5, 2018. A field wetland delineation was conducted by WRA on September 18 and 19, 2018. The purpose of these surveys was to determine the presence of and potential impacts to biological resources within the Project area. These surveys documented the physical habitat characteristics, assessed

[3] The municipal police power does not include the power to regulate entities operating under mandates set forth by state law. Courts have expressly applied this principal to water districts, which operate pursuant to the Water Code. *See e.g., Baldwin Park County Water Dist. v. Los Angeles County* (1962) 208 Cal.App.2d 87. Although Government Code § 53091 provides that local agencies must comply with applicable zoning ordinances, tree ordinances are not considered "zoning ordinances."

the potential for occurrence of special-status species, and determined the potential impacts to sensitive biological resources.

Land cover types were determined using high resolution aerial imagery, direct observations through ground truthing, and collection of soil, vegetation, and hydrology field data. Waters of the United States within the Project area were delineated in accordance with the 1987 "Corps of Engineers Wetland Delineation Manual" (USACE 1987), Version 2.0 of the Arid West regional supplement (USACE 2008), and "A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States" (Lichvar and McColley 2008).

## Land Cover Types

For the purposes of this analysis, land cover types are defined as the dominant character of the land surface as determined by vegetation, water, or human uses. Land cover types and common wildlife associations within the Project area are described below. The Project area, which totals approximately 10 acres, includes the riparian corridor up to the residential fence lines between Miller Avenue and Bollinger Road. The limits of waters of the U.S. and State in the Project area are included in the Aquatic Resources Delineation Report (**Appendix D**).

### *Calabazas Creek (Intermittent Stream)*

Calabazas Creek, an intermittent stream, totals approximately 2.2 acres (up to the ordinary high-water mark) and 4,714 linear feet in the Project area. The Calabazas Creek Watershed is 90% urban and fed by storm drain systems. Historically, Calabazas Creek did not connect to the Bay. Prior to the settlement of the Santa Clara Valley, Calabazas Creek flowed from the Santa Cruz Mountains through oak woodlands and savannahs and terminated in expansive wet meadows that covered the low-lying areas of the valley floor, which ultimately drained to the Bay. Land development upstream and downstream of the Project area have drastically increased the amount of runoff flowing to the creek and simultaneously decreased the sediment supply though the replacement of permeable surfaces with hardscape. Throughout the second half of the 19th century, Calabazas Creek was engineered to extend it past its historical terminus, connecting the creek to the Bay via Guadalupe Slough (San Francisco Estuary Institute 2010 and 2018).

In the reach between Bollinger Road and Miller Avenue (Project area), there is approximately 4 square miles of drainage, which is primarily urban with limited areas in the low-density residential foothills. Regnart Creek, an urban drainage channel, confluences with Calabazas Creek approximately 900 feet upstream of Miller Avenue, adding approximately 2 square miles of urbanized watershed. Regnart Creek is approximately 8 feet higher in elevation than Calabazas Creek, and this change in elevation has resulted in a scour hole in the Calabazas Creek bed.

Stream gauges and field observations on Calabazas Creek indicate that the creek is dry most of the year, except following rain events. On average, the summer months between late April and November have no appreciable flows, with only a small amount of discharge from storm drain systems. In the winter months, substantial flows occur which frequently reach over 100 cubic feet per second (cfs) at 6 feet or greater above grade. However, these flows recede quickly, usually within 24 hours (J. Xu, pers. comm. 2019; Valley Water 2019).

Channel degradation and incision has occurred in the Project area, which is a classic example of an urbanized stream with a starved sediment supply (J. Xu, pers. comm. 2019). Sediment is necessary for the development and resilience of aquatic habitats though the delivery and replenishment of nutrients for aquatic/riparian flora and fauna, as well as to prevent bank erosion. Due to the surrounding urban environment, the sediment load in the waters flowing to Calabazas

Creek is generally low. Furthermore, the high velocity flows in the creek when water is present (commonly referred to as a "flashy" creek), prevents much of the sediment that is available from depositing in the Project area, exacerbating problems associated with low sediment.

Water flow in Calabazas Creek is typically concentrated in a single-thread, relatively low-gradient channel below the ordinary high-water mark elevation. The channel is largely unvegetated with a bed of cobble, gravel, and coarse sand. The surrounding mature riparian tree canopy shades much of the channel and the channel bed is largely unvegetated. Limited areas of in-channel hydrophytic vegetation occur, which are dominated by smartweed (*Polygonum* spp.), but these features are not considered to be wetlands due to the lack of hydric soils (refer to **Appendix D**).

In general, Calabazas Creek in the Project area exhibits poor aquatic habitat. There are areas of existing hardscape within the channel, including locations with existing bank protection (i.e., riprap, grouted riprap, and sacked concrete) and the concrete channel lining at the Bollinger Road and Miller Avenue bridges, each extending approximately 65 feet into the Project area. Regnart Creek flows into Calabazas Creek over a concrete apron and has concrete banks upstream of the apron.

***Mixed Riparian Woodland (Coast Live Oak Woodland Alliance)***

Mixed riparian woodland habitat in the Project area, which has been classified as coast live oak woodland alliance using the Sawyer and Keeler-Wolf classification system, totals approximately 7.8 acres. Riparian habitat in the Project area is constrained by surrounding residential development and Creekside Park, and is defined by steeply incised banks. There are areas of existing hardscape within this community, including the paved access ramp off Bollinger Road and areas of existing bank protection (i.e., riprap, grouted riprap, and sacked concrete).

The riparian habitat in the Project area is dominated by many remnant and declining heritage-sized coast live oaks (*Quercus agrifolia*) and valley oaks (*Quercus lobata*), with a few large sycamores (*Platanus racemosa*) and blue gum trees (*Eucalyptus* spp.). The understory is sparse and comprised of shrubs including California buckeye (*Aesculus californica*), red elderberry (*Sambucus racemosa*), poison oak (*Toxicodendron diversilobum*), and some red willow (*Salix laevigata*). Non-native species are also present in dense patches including acacia (*Acacia* sp.) and giant reed (*Arundo donax*). There is no native herbaceous understory layer and dominant ground cover is nonnative and includes English ivy (*Hedera helix*), smilo grass (*Piptatherum milieaceum*), and scattered stinkwort (*Dittrichia graveolens*).

## Special-Status Species

For the purposes of this analysis, special-status species are defined as follows:

- Species listed or proposed for listing as threatened or endangered under FESA (50 CFR 17.12 [listed plants], 50 CFR 17.11 [listed animals]) and various notices in the Federal Register (FR) (proposed species).
- Species that are candidates for possible future listing as threatened or endangered under FESA (61 FR 40 7596–7613).
- Species listed or proposed for listing as threatened or endangered under CESA (14 CCR Section 670.5).
- Species that meet the definitions of rare or endangered under CEQA (State CEQA Guidelines, Section 15380).
- Plants listed as rare or endangered under the CNPPA (F&G Code Section 1900 et seq.).

- Plants assigned to one of the following California Rare Plant Ranks (CRPR) by the California Native Plant Society (CNPS) and collaborators.
    - 1A – Presumed extirpated in California and either rare or extinct elsewhere.
    - 1B – Rare, threatened, or endangered in California and elsewhere.
    - 2A – Presumed extirpated in California, but more common elsewhere.
    - 2B – Rare, threatened, or endangered in California, but more common elsewhere.
- Animal species, subspecies, or distinct populations designated as SSC by the CDFW, as identified in its "Special Animals List."
- Animals designated as Fully Protected species in California (F&G Code Sections 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians]).
- Bat species designated as high or medium priority by the Western Bat Working Group. The Western Bat Working Group is a partner in the Coalition of North American Bat Working Groups.

To identify special-status plant and animal species potentially occurring in the Project area, Valley Water biologists consulted the following sources:

- CDFW. 2020. California Natural Diversity Database (CNDDB). Biogeographic Data Branch, Sacramento, CA. Accessed in May 2020.
- CNPS. 2018. Rare Plant Program: Inventory of Rare and Endangered Plants within the 7.5-minute U.S. Geologic Survey Quadrangles (surrounding nine quadrangles). 7th edition, version 8-03. Accessed in October 2018. Available at: http://www.rareplants.cnps.org/
- USFWS. 2019a. List of Federally Endangered and Threatened Species that may Occur in Your Proposed Project Location, and/or may be Affected by Your Proposed Project. Sacramento USFWS. Accessed in March 2019. Available at: https://ecos.fws.gov/ipac/.

### *Special-Status Plants*

Based on a review of the above sources and as described in the Biological Site Assessment (**Appendix C**), Valley Water compiled a list of 45 special-status plant species with potential to occur in the region. After an analysis of the documented habitat requirements and occurrence records for each species, 41 species were eliminated based on a lack of suitable habitat in the Project area. The remaining four special-status plant species with potential to occur in the Project area are included in **Table 4-3**. There are no CNDDB occurrences of special-status plants within 2 miles of the Project area.

Loma Prieta hoita (*Hoita strobilina*) and arcuate bush mallow (*Malacothamnus arcuatus*) can be identified outside of the bloom period by an experienced botanist and were not noted in the Project area. Western leatherwood (*Dirca occidentalis*), found in riparian areas, is more difficult to identify outside of its winter bloom period; however, each of the bank rehabilitation sites were carefully surveyed for this species and it was not found. Furthermore, the habitat in this reach of Calabazas Creek is so highly modified and disturbed there is virtually little to no potential for this species to be present in the Project area. There was no suitable habitat for woodland monolopia (*Monolopia gracilens*) in the Project area. No other special-status plants were identified during the survey and special-status plants are considered absent from the Project area.

**Table 4-3.** Special-Status Plants with Potential to Occur in the Project Area

| **Common Name** ***Scientific Name*** | **Status[1] Federal/ State/CNPS** | **General Habitat Description** | **Present/Absent in Project Area** | **Rationale** |
|---|---|---|---|---|
| Arcuate bush-mallow *Malacothamnus arcuatus* | –/–/1B.2 | Chaparral and cismontane woodlands | Absent | Not observed in Project area by Qualified Plant Ecologist. Only one recorded occurrence greater than 2 miles upstream of the Project area in the Saratoga foothills. |
| Loma Prieta hoita *Hoita strobilina* | –/–/1B.1 | Chaparral, cismontane woodlands, and riparian woodlands, usually on serpentinite or in mesic areas | Absent | Not observed in Project area by Qualified Plant Ecologist. Only one recorded occurrence greater than 2 miles upstream of the Project area in the Saratoga foothills. |
| Western leatherwood *Dirca occidentalis* | –/–/1B.2 | Broad-leafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodlands, North Coast coniferous forest, and riparian forest. | Absent | Not observed in Project area by Qualified Plant Ecologist. Only one recorded occurrence approximately 4 miles southwest of the Project area. |
| Woodland monolopia *Monolopia gracilens* | –/–/1B.2 | On serpentine soils in broad-leafed upland forests (openings), cismontane woodlands, and valley and foothill grasslands | Absent | Qualified Plant Ecologist determined that there is no suitable habitat in the Project area. Only one recorded occurrence greater than 2 miles upstream of the Project area in the Saratoga foothills. |

[1] Status explanation:
– = no listing.
CNPS California Rare Plant Rank:
1B = List 1B species: plants rare, threatened, or endangered in California and elsewhere.
CNPS Code Extensions:
0.1 = seriously endangered in California (over 80 percent of occurrences threatened/high degree and immediacy of threat).
0.2 = fairly endangered in California (20-80 percent of occurrences threatened).

### *Special-Status Fish and Wildlife*

Based on a review of the above sources, Valley Water compiled a list of 17 special-status fish and wildlife species with potential to occur in the Project area (**Table 4-4**). Only two of these 17 species have known CNDDB occurrences within 2 miles of the Project area, as depicted in **Figure 4-2**. Eight species were added to the list based on a query of the USFWS IPaC search, and an additional seven species were included based on Valley Water expertise and their known presence in Santa Clara County. Due to a lack of suitable habitat, only six of the 17 special-status wildlife species have potential to occur in the Project area.

The only species known to be present in the Project area is the San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*), as woodrat nests were observed in the Project area. While two special-status birds including yellow warbler (*Setophaga petechia*) and yellow-breasted chat (*Icteria virens*) could occur in the Project area as foragers, these species are not expected to breed in the Project area due to a lack of suitable nesting habitat. These birds are only considered Species of Special Concern when nesting, and therefore impacts to these species are not evaluated further. Similarly, three special-status bats could be present in the Project area: western red bat (*Lasiurus blossevillii*), Townsend's big-eared bat (Corynorhinus townsendii), and pallid bat (*Antrozous pallidus*). Western red bat is a migratory species that is not known to raise young in Santa Clara County (Johnston; D. S., and S. Whitford. 2009). The species overwinters in the county generally from November to February (Johnston, D. S., and S. Whitford. 2009; Cryan, P. M., 2003), outside the work period. In general, this species is not found in the central coast in summer, but low numbers of this species (presumably males and mostly itinerant migrants) have been detected in late spring and summer (J. Watson, pers. Comm. 2020) so it is possible but unlikely for the species to be present (including roosting in foliage and foraging) when the work is occurring. Roosting habitat for Townsend's big-eared bat and pallid bat is absent but these species could forage in the Project area at night. Given Townsend's big-eared bat and pallid bat would not be present during work, which would be restricted to daylight hours, impacts to these species are not evaluated further.

The Biological Site Assessment (**Appendix C**) details the rational for determining that California red-legged frogs (*Rana draytonii*) and western pond turtles (*Emys marmorata*) would not occur in the Project area. California red-legged frog was excluded due to the short hydroperiod required for frog breeding (3.5 to 7 months), the highly episodic nature of the creek flows, absence of pools with appropriate depths, absence of emergent vegetation combined with long and shallow runs, lack of upland refugia and suitable aquatic habitat, steep channel banks, and the long distances to the nearest know red-legged frog occurrences. Western pond turtle was excluded for similar reasons, largely based on the highly episodic nature of the creek flows, as well as the absence of upland refugia.

**Figure 4-1**. CNDDB Fish and Wildlife Occurrences within 2 Miles of Project Area

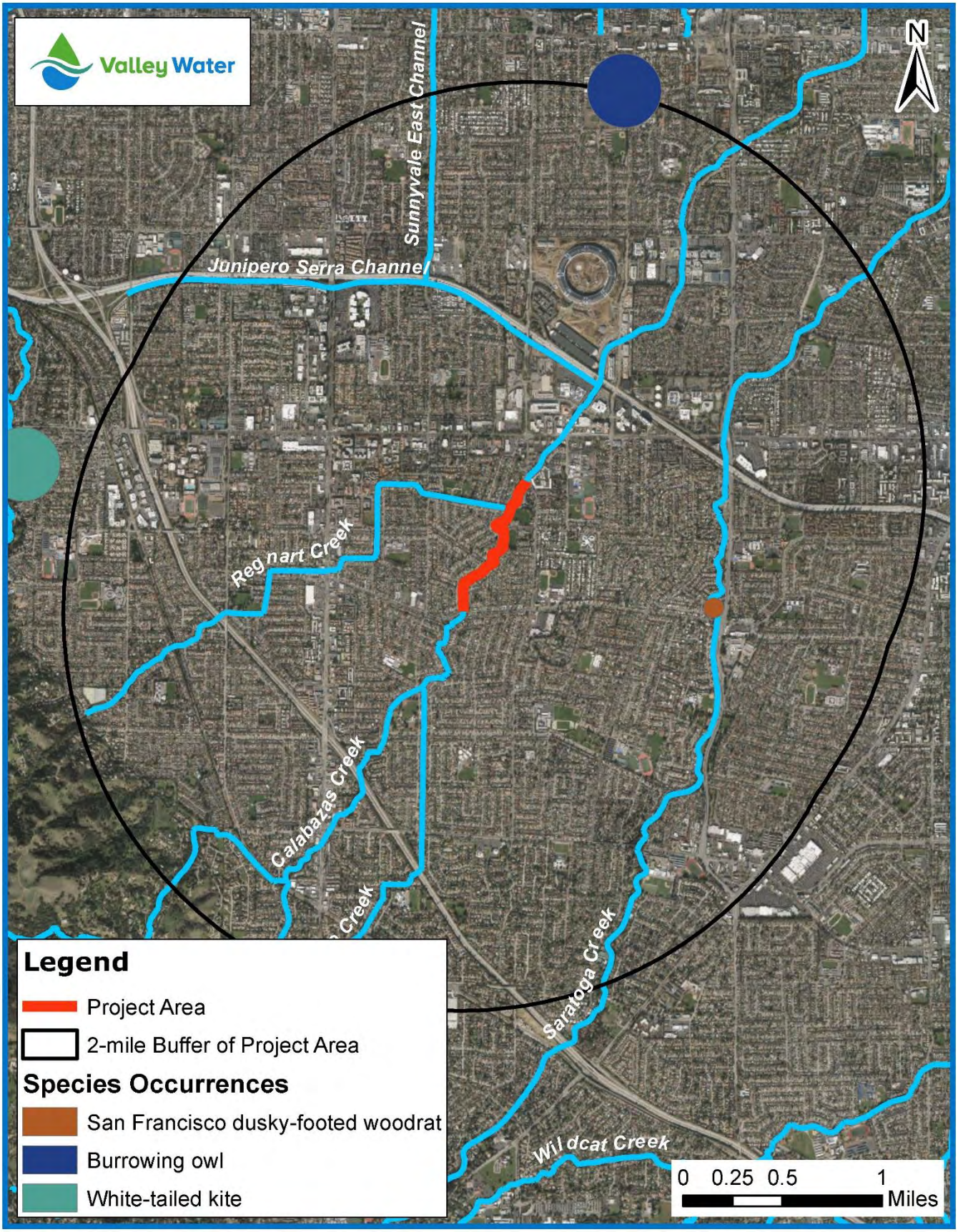

**Table 4-4.** Special-Status Animal Species with Potential to Occur in the Project Area

| Common Name<br>Scientific Name | Status[1]<br>Federal/<br>State/<br>Other | General Habitat Description | Habitat Present/ Absent | Potential for Occurrence in Project Area |
|---|---|---|---|---|
| **Invertebrates** | | | | |
| Bay checkerspot butterfly *Euphydryas editha bayensis* | FT/–/– | Open grasslands with serpentine soil outcrops and host plants. Serpentine plants (*Plantago erecta* and/or *Castilleja exserta* or *C. densiflora*) serve as larval host plants. | Absent | **None**. Species inhabits serpentine grasslands that are not present in or immediately adjacent to the Project area. The Project does not intersect any of the populations or "habitat units" that are well known and monitored within the county (ICF 2012). |
| San Bruno elfin butterfly *Callophrys mossii bayensis* | FE/–/– | Rocky outcrops and cliffs in coastal scrub habitat within the fog belt on steep north-facing slopes with low sunlight. Broadleaf stonecrop (*Sedum spathulifolium*) serves as the larval host plant | Absent | **None**. Species is restricted to San Mateo County (USFWS 2019b). |
| **Fish** | | | | |
| Delta smelt *Hypomesus transpacificus* | FT/SE/– | Open water bays and tidal river channels and sloughs with various degrees of salinity. Typically spawn in freshwater sloughs and shallow edge waters. | Absent | **None**. Outside of the species' known range (CDFW 2019a; USFWS 2017*)*. |
| **Amphibians** | | | | |
| California red-legged frog *Rana draytonii* | FT/–/SSC | Aquatic breeding areas adjacent to upland dispersal habitats with suitable microhabitat (rodent burrows, crevices, fallen logs, etc.) for cover. Breeding sites include pools and backwaters within streams, ponds, and marshes with both open water and emergent vegetation. | Absent | **None**. The lack of suitable microhabitat, freshwater breeding areas, pools, and upland refugia in Project area precludes presence of the species. Episodic flows are not suitable for the species. The nearest CNDDB occurrence is over 3.6 overland miles to the Project area, or 4.8 miles upstream. |
| California tiger salamander *Ambystoma californiense* | FT/ST/– | Live mostly underground in small mammal burrows, emerging in the rainy season to breed. Restricted to vernal pools and temporary freshwater ponds for breeding in grassland, oak savannah, or edges of mixed woodland habitat containing well-maintained burrows. | Absent | **None**. There is no suitable aquatic (temporary/permanent freshwater pools) or upland (grasslands with rodent burrows) habitat in the Project area. The species is not known to occupy riparian areas. The surrounding area is highly developed. The nearest CNDDB occurrence is over 2 miles from the Project area. |

| Common Name<br>Scientific Name | Status[1]<br>Federal/<br>State/<br>Other | General Habitat Description | Habitat Present/ Absent | Potential for Occurrence in Project Area |
|---|---|---|---|---|
| **Reptiles** | | | | |
| Western pond turtle<br>*Emys marmorata* | –/–/SSC | Permanent to nearly permanent freshwater ponds, lakes, rivers, creeks, wetlands, and marshes with suitable basking habitat and aquatic vegetation in woodland, forest, or grassland habitats. Prefer slow-moving water with deep pools and woody debris, rocks, vegetation mats, or exposed banks for basking. Use terrestrial upland sites for refuge during droughts, floods, and for nesting. | Absent | **None**. The lack of suitable aquatic and upland habitat in Project area precludes presence of the species. Episodic flows are not suitable for the species. The nearest CNDDB occurrence is over 5 overland miles from the Project area. |
| **Birds** | | | | |
| Burrowing owl<br>*Athene cunicularia* | –/–/SSC | Nest and roost in open grasslands with short vegetation and ruderal habitats with unobstructed views, suitable foraging habitat, and burrows, typically those made by California ground squirrels. Forage over grasslands for invertebrates and small vertebrates such as lizards, birds, or mammals such as mice, voles, and shrews. | Absent | **None.** The Project area lacks open grasslands with suitable burrows for nest sites. |
| California least tern<br>*Sternula antillarum browni* | FE/SE/FP | Coastal areas, beaches, bays, estuaries, lagoons, lakes, and rivers. Nest in scrapes on sandy or gravel areas lacking vegetation near water. Forage for fish over water. | Absent | **None**. Project area is outside of the species known range (CDFW 2014; USFWS 2013). |
| California Ridgway's rail<br>*Rallus obsoletus obsoletus* | FE/SE/FP | Salt marshes, tidal and brackish marshes, and wetland areas with tidal sloughs and access to mudflats or shallow waters with abundant invertebrates for foraging, and adjacent to high marsh for refugia during high tides. Occur in cordgrass-pickleweed dominant habitats, often with gumplant and saltgrass. Nest in the lower areas of marshes in dense vegetation such as cordgrass, pickleweed, and gumplant. | Absent | **None**. Project area is outside of the species known range (CDFW 2014; USFWS 2013). |
| Marbled murrelet<br>*Brachyramphus marmoratus* | | | Absent | **None.** Project area is outside of the species known range (USFWS 1997). |

| Common Name<br>Scientific Name | Status[1]<br>Federal/<br>State/<br>Other | General Habitat Description | Habitat Present/ Absent | Potential for Occurrence in Project Area |
|---|---|---|---|---|
| White-tailed kite<br>*Elanus leucurus* | –/–/FP | Coastal and valley lowlands. Forage in open grasslands, meadows, agricultural, and marsh habitats with abundant small mammal prey. Nest high in isolated trees such as sycamore, willow, oak, eucalyptus, or walnut (3-50 m tall) or forest edges near foraging habitat. | Absent | **None**. The species is fairly common in the County (Bousman 2016). Nest site selection is in or adjacent to open areas which provide the microhabitat needed for foraging. The Project area is surrounded by a built out residential development that has encroached on the riparian corridor. Adjacent open areas, which could provide foraging habitat are absent; therefore, suitable nesting habitat is absent within the Project area due to the lack of suitable adjacent foraging habitat. |
| Yellow warbler<br>*Setophaga petechia* | –/–/SSC | Nest in multi-story riparian habitats with dense understories. | Present (foraging), Absent (nesting) | **Low**. This species is considered to be an uncommon summer resident in the County (Bousman 2016). The species has been documented nesting along riparian corridors, often with a mature overstory of cottonwoods and sycamores, a mid-story of willow and box elder, and a substantial shrub understory of vines, blackberries, and forbs (Bousman 2007). Due to the lack of riparian habitat complexity (mid-story and dense understory is absent), suitable nesting habitat is absent within the Project area. The species may forage in the Project area. |
| Yellow-breasted chat<br>*Icteria virens* | –/–/SSC | Nest in riparian and open habitats with dense understories. | Present (foraging), Absent (nesting) | **Low**. This species is considered to be very rare in the County (Bousman 2016) and is only found breeding in scattered riparian locations in the Diablo Range in southern portions of the County (Bousman 2007). The species utilizes a variety of nesting habitats (multi-overstory, no overstory, etc.), all of which have a dense understory. Due to the lack of a dense understory, suitable nesting habitat is absent within the Project area. The species may forage in the Project area. |
| **Mammals** | | | | |
| Pallid bat<br>*Antrozous pallidus* | –/–/SSC | Forest habitats with access to trees for cover and open areas or habitat edges for feeding. Typically associated with coniferous forests. Hang singly in tree foliage by day; usually 7-20' above ground in tree with leafed canopy above and open below. Roosts in a variety of structures including rock cracks and crevices, caves, buildings, bridges, and tree cavities (Baker et al. 2008, Hermanson & O'Shea 1983, O'Shea and Vaughan 1977). | Present (foraging), Absent (roosting) | **Low.** Structures in or immediately adjacent to the Project area that could be considered suitable roosting locations for the species are absent. They may forage in riparian woodlands at night outside work hours. There are no records of the species within 5 miles of the Project area. |

| Common Name<br>Scientific Name | Status[1]<br>Federal/<br>State/<br>Other | General Habitat Description | Habitat<br>Present/<br>Absent | Potential for Occurrence in Project Area |
|---|---|---|---|---|
| San Francisco dusky-footed woodrat<br>*Neotoma fuscipes annectens* | –/–/SSC | Riparian and woodland habitats. | Present | **Present.** Woodrat nests occur throughout the Project area and woodrats are assumed to be present. |
| Townsends big-eared bat<br>*Corynorhinus townsendii* | –/–/SSC | Roosts in caves, mines, tunnels, buildings, or other human-made structures. | Present (foraging), Absent (roosting) | **Low**. This is a cave-dwelling species, but is also known to use old, mostly abandoned buildings with darkened and enclosed cave-like attics in addition to other anthropogenic structures (Barbour and Davis 1969). There are no structures in or immediately adjacent to the Project area that could be considered suitable roosting locations for the species. They may forage in riparian woodlands at night when work is not occurring. There are no records of the species within 5 miles of the Project area. |
| Western red bat<br>*Lasiurus blossevillii* | –/–/SSC | Forages in riparian woodland habitats, forest-edge, orchards and agricultural lands, and around urban/residential areas. Generally, roosts independently in tree and shrub foliage. Tend to be associated with mature trees. | Present (foraging/ roosting), | **Low**. Migratory species that is not known to raise young in Santa Clara County (Johnston; D. S., and S. Whitford. 2009). Overwinters in the county generally from November to February (Johnston, D. S., and S. Whitford. 2009; Cryan, P. M., 2003), outside the work period. In general, this species is not found in the central coast in summer, but low numbers of this species (presumably males and mostly itinerant migrants) have been detected in late spring and summer (J. Watson, pers. Comm. 2020) so it is possible but unlikely for the species to be present when the work is occurring. |

Notes:
[1] Status Codes

| | |
|---|---|
| – | no listing. |
| FE | listed as endangered under FESA. |
| FT | listed as threatened under FESA. |
| SE | listed as endangered under CESA. |
| ST | listed as threatened under CESA. |
| SSC | listed as a Species of Special Concern by the State of California. |
| FP | California fully protected species. |

**Wildlife Movement**

Wildlife movement corridors, often termed "habitat linkages" or simply "corridors" refer to any space (usually linear in shape) that improves the ability of organisms to move among patches of their habitat (Hilty et al. 2006). Often, corridors describe areas that wildlife use to move between habitat patches that have been separated or fragmented by topography, changes in vegetation, or other natural or human disturbances or land use changes such as roads that wildlife cannot or prefer not to cross. The fragmentation of natural habitat creates isolated "islands" of vegetation that may not provide sufficient area or resources to accommodate sustainable populations for a number of species, thus adversely affecting both genetic and species diversity.

Wildlife corridors somewhat mitigate the adverse effects of habitat fragmentation by (1) allowing animals to move between remaining habitat patches to replenish depleted populations and increase the available gene pool; (2) providing escape routes from fire, predators, and human disturbances, thus reducing the risk that catastrophic events (such as fire or disease) will result in population or species extinction; and (3) serving as travel paths for individual animals moving throughout their home range in search of food, water, mates, and other needs, such as dispersing juveniles in search of new home ranges.

While Calabazas Creek originates in the Santa Cruz Mountains, which is considered a significant habitat area, the Project reach does not form a corridor to other substantial habitat areas. Once Calabazas Creek reaches the valley floor, it is surrounded by urban and residential development until it terminates at its confluence with the Guadalupe Slough on the San Francisco Bay, approximately 8 miles downstream of the Project area. Calabazas Creek is largely channelized, lined with concrete for substantial portions of its length, and crosses through numerous culverts. Calabazas Creek is not inhabited by anadromous (migratory) fish species and is an intermittent creek, typically dry in the summer months. The highly episodic flows in Calabazas Creek render the corridor less suitable for aquatic wildlife movement.

Migration is the seasonal or periodic movement of individuals from one area to another, typically over long distances. Migration typically occurs in response to seasonal changes in abundance or distribution of food sources or available breeding habitat. Numerous migratory songbirds and raptors are routinely present within the Project area. Migratory birds and raptors could use the Project area and the remainder of the Calabazas Creek riparian corridor to move between habitats along the Bay up into the Santa Cruz Mountains to the west, or between riparian corridors on the valley floor. However, many bird species have adapted to development and may equally move through residential and commercial areas along their migratory pathway. Outside the breeding season, the Project area may provide foraging opportunities for migratory birds.

## Discussion

**a) Would the Project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?**

Following a review of existing data sources and field surveys, Valley Water biologists determined that two special-status species could be adversely affected by the Project:

- San Francisco dusky-footed woodrat
- Western red bat

## San Francisco Dusky-Footed Woodrat

The San Francisco dusky-footed woodrat (SSC) is present in the Project area, as woodrat nests (also referred to as lodges) were observed during biological surveys. As described under item b) below, placement of riprap along creek banks and installation of sheet pile walls would permanently impact approximately 0.08 acre of riparian habitat. However, nearly all of these impacts would be associated with reconstructing banks with riprap that would be buried under a layer of soil and revegetated. While placement of riprap, even buried under a layer of soil, would be considered a permanent impact to riparian habitat, woodrats would still be able to forage and nest in the area post-construction. Therefore, the placement of riprap would not result in loss of woodrat habitat in the Project area; in fact, woodrats would likely benefit from additional habitat area, as some near vertical banks would be recontoured to gentler slopes that are more suitable for woodrat use. Nevertheless, nesting woodrats could be disturbed or injured during bank rehabilitation work and equipment access. Disturbance or mortality of woodrats would be considered a significant impact. **Mitigation Measure (MM-) BIO-1** and **MM-BIO-2** are proposed to address this impact.

**MM-BIO-1: Environmental Awareness Training**

Prior to the start of construction, a qualified biologist shall conduct an Environmental Awareness Training for all construction workers. The Environmental Awareness Training shall include the following information:

1. A review of the Project boundaries;
2. Special-status species that may be present, their habitat, and proper identification;
3. Mitigation measures and BMPs that must be followed;
4. The general provisions and protections afforded by the Project's permit conditions; and
5. The proper procedures if a special-status species is encountered within the Project area.

An instructional pamphlet shall be included with the Environmental Awareness Training and additional copies will be left for construction personnel that join the Project after the training has been conducted. At the completion of the Environmental Awareness Training the qualified biologist will designate on-site personnel (generally the construction crew manager) who will ensure that new construction members receive and review the pamphlet information. The environmental training designee shall also be the primary point of contact in the event that special-status species are found in the Project area and the presence of the qualified biologist is required.

**MM-BIO-2: Conduct Surveys for San Francisco Dusky-Footed Woodrat and Protect Nests**

Prior to the start of construction activities, a qualified biologist will conduct preconstruction surveys for woodrat nests. Surveys will take place no more than 48 hours prior to the onset of site preparation and construction activities with the potential to disturb woodrats or their habitat. All nests shall be identified and their locations mapped and flagged to be avoided during construction activities.

If woodrat nests are found that could be disturbed by construction activities, a woodrat nest relocation plan will be provided to CDFW for review and approval prior to the start of construction activities. The plan will require that the qualified biologist will install a 5-foot no work buffer around the lodges. If woodrat lodges cannot be avoided by construction

activities, the plan will detail methods for a qualified biologist to ~~will~~ dismantle the lodge and relocate the lodge materials (i.e., sticks and logs) to the closest location possible that is outside of the construction work area. ~~Any woodrat lodge relocations would be performed after consulting with CDFW.~~

**MM-BIO-1** requires all construction workers receive an environmental awareness training, including review of special-status species that could be present (including woodrats), to ensure workers do not inadvertently impact the species and correctly implement avoidance and minimization measures (including permit conditions). **MM-BIO-2** requires surveys for woodrat nests, implementing 5-foot no-work buffers around woodrat nests, and if avoidance is not possible, passive dismantling and relocation of woodrat nest materials to the closest location outside of the work area as possible. Implementation of this measure will ensure there will be no direct harm to nesting woodrats. Therefore, implementation of **MM-BIO-1** and **MM-BIO-2** would reduce the impacts on woodrats to a **less than significant** level. Furthermore, while not intended to address impacts to woodrats, **MM-BIO-4** (described below) is proposed to restore or enhance riparian habitat and would result in long-term benefits to woodrat nesting habitat.

## Western Red Bat

While Santa Clara County is not known to support maternity roosts for western red bats, low numbers of this species (presumed to be itinerant migrating males) could be found roosting in foliage or foraging in the Project area during the spring and summer when work is occurring. Western red bat is typically a solitary foliage roosting species (i.e., not a colonial roosting species) and tend to have low roost site fidelity; therefore, due to the seasonality of the work and ecology of the species, impacts to maternity and/or colonial roost sites are unlikely and this impact would be less than significant. However, solitary roosting western red bats could be impacted by work activities such as vegetation removal and operation of heavy equipment, which could result in direct mortality or injury to bats through crushing by equipment or falling vegetation. Impacts on roosting western red bats are considered significant. **MM-BIO-3** is proposed to address this significant impact.

**MM-BIO-3: Implement Western Red Bat Avoidance Measures and Protect Roosts**

Prior to the start of construction activities, a qualified biologist will conduct preconstruction surveys for western red bats. Surveys will take place no more than 48 hours prior to the onset of site preparation and construction activities with the potential to disturb bats or their habitat and will include close inspection of potential bat roosts, such as trees and any foliage in the Project area. If bat(s) are found roosting, an appropriate buffer will be established as determined by the qualified biologist. Work will not occur within the buffer until the bat(s) are determined to be absent from the area.

**MM-BIO-3** requires pre-construction surveys for roosting bats and establishment of no-work buffers if bats are found, thereby ensuring significant impacts to roosting bats do not occur. Therefore, implementation of **MM-BIO-3** would reduce the impacts on western red bat to a **less than significant** level.

## Migratory Birds (including special-status species)

The Project area supports nesting habitat for a variety of migratory birds and raptors protected under the MBTA and F&G code. Heavy equipment and human activity during construction would increase noise in the vicinity of the work area, potentially resulting in disturbance of

birds nesting and foraging in the area. If occupied nests are present on or adjacent to the construction area, construction activities could result in the abandonment of nests, the death of nestlings, and/or the destruction of eggs in active nests. It is worth noting that Valley Water biologists identified a Cooper's hawk nest in a large eucalyptus tree at Site 5 (tree not impacted by the Project); the nest was identified through observation of a male Cooper's hawk delivering prey to the nest during the nesting season in March 2019.

Migratory birds including raptors, and their nests are protected under the MBTA and the California F&G Code. However, as described in BMP BI-2 (*Avoid Impacts to Nesting Migratory Birds*), when work is scheduled to occur during the nesting bird season, a focused survey for active nests would be conducted by a qualified biologist prior to the beginning of construction at each work site. If an active nest is discovered, the qualified biologist shall install an appropriate no-work buffer around the nest. The buffer would remain in place until the nest is determined inactive by the qualified biologist. If a lapse in Project-related work of 7 days or longer occurs, another survey would be conducted. While birds may avoid the Project area during construction, with implementation of BMP BI-2, construction is not expected to result in take of birds. Construction impacts to nesting migratory birds and raptors would be **less than significant**, as the Project would avoid disturbance of active nests. No mitigation is required.

**b) Would the Project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?**

The Project would result in permanent and temporary impacts on intermittent stream (Calabazas Creek up to the OHWM) and riparian habitat (Coast Live Oak Woodland Alliance), as summarized in **Table 4-5**.

**Table 4-5.** Impacts on Sensitive Natural Communities

| Site | Intermittent Stream | | Riparian Habitat | |
|---|---|---|---|---|
| | **Permanent ($ft^2$)** | **Temporary[a] ($ft^2$)** | **Permanent ($ft^2$)** | **Temporary ($ft^2$)** |
| 1 | - | - | 176 | - [b] |
| 2 | 278 | 363 | 51 | 44 |
| 3 | 156 | - | 74 | - |
| 4 | 323 | - | - | - |
| 5 | - | - | 331 | 340 |
| 6 | - | - | 1,626 ~~1,522~~ | 219 ~~166~~ |
| 7 | - | - | 976 | 534 |
| 8 | - | - | 374 ~~453~~ | 1,795 ~~2,197~~ |
| 9 | - | - | - | 8,539 |
| 10 | - | - | - | 3,937 |
| Equipment Access | - | 95,832[a] | - | - |
| Cofferdam | - | 130 | - | - |
| **Total** | **757 $ft^2$ (0.02 acre)** | **96,325 ~~363~~ $ft^2$ (2.21 ~~0.01~~ acre)[c]** | **3,608 ~~3,583~~ $ft^2$ (0.08 acre)** | **15,408 ~~15,757~~ $ft^2$ (0.35 ~~0.36~~ acre)** |

[a] This amount includes the entire creek corridor in the Project area and would occur from equipment moving through the dry streambed. Actual temporary impact limits from equipment access are expected to be substantially lower. ~~Temporary impacts on the stream channel do not include impacts from dewatering and equipment access, which total approximately 2.20 acres~~. The stream channel would be restored to pre-Project contours and conditions at the conclusion of work.
[b] The Project would replace 399 square feet of existing grouted riprap, but this is not counted as part of the impact total.
[c] If equipment access is not included in the temporary impact total, the temporary impact would be 493 square feet (0.01 acre)

The Project would result in approximately 0.02 acre of fill in Calabazas Creek from placement of riprap along the channel toe. However, at Sites 9 and 10, the total area available for channel movement and migration would eventually expand as the soils in front of the sheet pile walls naturally erode. This would likely result in a net increase in the total area of intermittent stream in the Project area, and the wider channel area at Sites 9 and 10 may be capable of supporting additional in-channel vegetation, thereby enhancing the creek in this area. Temporary impacts to Calabazas Creek would occur from the temporary placement of fill during ground disturbing activities, movement of equipment through the channel, and dewatering of the channel during construction. Temporarily impacted portions of Calabazas Creek below the OHWM would be restored to pre-Project contours and conditions at the completion of work.

The Project would also result in permanent impacts to approximately 0.08 acre of riparian habitat from the placement of riprap along creek banks and installation of sheet pile walls. Temporarily impacted areas would be revegetated with native species, thereby restoring the habitat to pre-Project conditions or better. Generally, the riparian habitat presently exhibits characteristics of human influence including a constrained corridor from surrounding

development, steep and eroding banks, existing hardscape (i.e., riprap, sacked concrete, and concrete) in several locations, and portions of the habitat dominated by non-native and invasive species (i.e., acacia, tree of heaven, giant reed, and English ivy, among others). An estimated 29 ~~32~~ trees would be removed from the riparian habitat to facilitate bank rehabilitation work at Sites 6 through 10, though no trees would be removed at Sites 1 through 5. Of the 29 ~~32~~ riparian trees being removed, 17 ~~18~~ are native (primarily coast live oak and valley oak), 6 ~~10~~ are non-native, and 6 ~~four~~ are invasive. Temporary impacts on riparian habitat are the result of the work area needed to perform the bank repairs (i.e., equipment movement) (Sites 5 and 8-10) or portions of reconstructed eroded creek banks that are formed of native soil and revegetated (Sites 2 and 6-10).

Furthermore, as part of the Project, the existing sewer line crossing and log revetment abutment that supports the sewer line at Site 9 would be removed and the bank would be restored to natural contours and conditions. Removal of the sewer line and abutment would benefit the stream and riparian habitat by removing hardscape from the habitat, while also removing a utility line that has been prone to leaking/spills; this work element, along with the Project's proposed restoration to replant trees and vegetation (in the amount of 0.3 acre of native riparian vegetation) following the bank repair, would offset some of the Project's adverse impacts on riparian habitat. Nevertheless, permanent loss of riparian habitat from the installation of hardscape would be considered a significant impact. **MM-BIO-4** is proposed to address this impact.

**MM-BIO-4: Restore and/or Enhance Riparian Habitat**

Valley Water will restore and/or enhance any permanently impacted riparian habitat at a mitigation-to-impact ratio of 3:1 ~~2:1~~ and restore temporarily affected habitat at a minimum impact-to-mitigation ratio of 1.1:1 ~~1:1~~ to ensure no net loss of riparian habitat functions and services (e.g. native canopy and understory cover, habitat for birds and bats, protection of water quality, etc.). Valley Water will develop and implement a Habitat Mitigation and Monitoring Plan (HMMP) for impacts to riparian habitat that details the mitigation actions necessary to ensure the 3:1 and 1.1:1 mitigation ratios are being met and there is no net loss of riparian functions and services. For example, the HMMP may propose removal of invasive species cover (English ivy and giant reed) and planting of native trees and understory at Sites 9 and 10 (including multi-story revegetation plans) to meet the specified mitigation ratios. ~~The HMMP may identify a suite of on-site mitigation actions to ensure the impact is fully mitigated.~~ If appropriate, the HMMP may take into consideration the Project's work activities that result in beneficial effects on riparian habitat (such as the removal of the existing sewer line and associated abutment at Site 9 and the Project's restoration effort to plant trees or vegetation) ~~planted as part of the Project's restoration~~ may be used to offset the amount of mitigation required under this mitigation measure. In addition, any trees replaced pursuant to the City of Cupertino Protected Trees Ordinance (see Mitigation Measure BIO-5) could be counted towards the riparian mitigation.

The HMMP will include success criteria as specified by the permitting agencies. The HMMP will also include adaptive management guidelines for actions to be taken if the success criteria are not met. Monitoring will assess progress of the restoration and/or enhancement actions according to the success criteria. If progress is not satisfactory, adaptive management actions (including replanting, nonnative species removal, etc.) could be implemented. The HMMP would be subject to CDFW and RWQCB review and approval and will remain in force until the success criteria are met.

**MM-BIO-4** would require restoration and/or enhancement of riparian habitats in the Project area at a 3:1 ~~2:1~~ mitigation-to-impact ratio to compensate for ~~the~~ permanent Project impacts, and a 1.1:1 ratio to compensate for temporary impacts associated with temporal loss. Restoration or enhancement actions to compensate for impacts on riparian habitat ~~may~~ would likely include planting of up to 54 native riparian trees and understory vegetation in a 0.3-acre area to restore the multi-story riparian habitat at Sites 9 and 10, and ~~or~~ removal of up to 1.07 acre of ~~non-native or~~ invasive species in the Project area. Removal of invasive species would promote biodiversity, improve water quality, and restore and enhance habitat for wildlife (e.g., birds and bats). Planting of smaller stature native trees (i.e., buckeye, elderberry, and holly-leafed cherry) and herbaceous ground cover at Sites 9 and 10 would result in a moderately dense mid-story and understory that is compatible with the site (taller trees are not suitable due to overhead utilities), and provides shade on creek, filters stormwater runoff, contributes organic matter, and promotes biodiversity. In addition, the Project's removal of the existing sewer line and associated abutment would remove hardscape from the riparian area and reduce the risk of stream contamination, as the sewer pipeline previously leaked into the creek. The Project's restoration activities (which would include replanting of trees and understory vegetation) would further offset the Project's adverse impacts on riparian habitat. Together, these actions would ensure the riparian functions and services in the Project area are maintained. With implementation of **MM-BIO-4**, the Project would result in a **less than significant** impact on sensitive natural communities.

**c) Would the Project have a substantial adverse effect on State or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?**

As described in the Aquatic Resources Delineation Report (**Appendix D**), Calabazas Creek in the Project area supports 2.2 acres and 4,714 linear feet of intermittent streambed/open water. Calabazas Creek in the Project reach is single-thread stream that only conveys flow episodically and is mostly unvegetated. The Aquatic Resources Delineation Report did not identify any in-stream or off-channel State or federally protected wetlands. Wetlands are also absent from adjacent reaches of Calabazas Creek. Therefore, there would not be a substantial adverse effect on wetlands protected under Section 404 of the CWA or the Porter-Cologne Water Quality Control Act. **No impact** would occur.

**d) Would the Project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?**

Although Calabazas Creek originates in the Santa Cruz Mountains, which is considered a significant habitat area, the Project reach does not connect this habitat to other substantial habitat areas. Once Calabazas Creek reaches the valley floor, it is surrounded by urban and residential development until it terminates at its confluence with Guadalupe Slough on the San Francisco Bay, approximately 8 miles downstream of the Project area. Calabazas Creek is largely channelized, lined with concrete for substantial portions of its length, and crosses through numerous culverts. Calabazas Creek is not inhabited by anadromous (migratory) fish species and is an intermittent creek, typically dry in the summer months when work would occur. Thus, impacts to migratory wildlife, anadromous fish, or resident fish are not expected to occur. Resident wildlife may avoid Project areas with temporarily high human activity and noise, but as soon as the bank rehabilitation work is completed, wildlife movement in the Project area will return to its pre-Project condition. Therefore, impacts to habitat connectivity and wildlife movement would be **less than significant**.

**e) Would the Project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?**

The City of Cupertino Municipal Code Chapter 14.18, Protected Trees Ordinance, provides regulations for the protection, preservation, and maintenance of trees of certain species and sizes. The Project proposes the removal of 29 ~~32~~ trees, including 9 trees classified as mature specimen trees in the Protected Trees Ordinance, as summarized in **Table 4-6**. All protected trees removed are coast live oaks. No heritage trees would be removed. Protected trees not identified for removal could also be damaged by construction equipment or be at risk of mortality through root pruning, if done improperly or in excess of the amount the tree could withstand. Although Valley Water is not subject to local tree regulations as explained in the *Regulatory Setting* above, it will voluntarily comply with applicable provisions in the City's tree ordinance as though it did apply, including obtaining a permit before tree removal and complying with the permit conditions (see MM-BIO-5).

**Table 4-6**. Protected Coast Live Oak Trees to be Removed by the Project

| DBH (inches) | Number of Removed Trees |
|---|---|
| >12 – 18 | 3 |
| >18 - 24 | 1 |
| >24 – 30 | 4[1] |
| >30 | 1[1] |
| | **9** |

[1] Consistent with Tree Removal Permit application requirements in the Protected Trees Ordinance, Valley Water or its contractor will specify the precise DBH of any tree over 24 inches DBH and provide a photograph of the tree in an arborist report from a certified arborist.

Removal of or damage to trees protected under the City's Protected Trees Ordinance that would conflict with the ordinance would be considered a significant impact under CEQA. MM-BIO-5 is proposed to address the impact on protected trees; it requires implementation of measures to minimize harm to trees that have not been identified to be removed and compliance with the City's Protected Trees Ordinance for trees that are proposed to be removed. Voluntary Compliance with the City's Protected Tree Ordinance would include obtaining a tree removal permit which requires replacement of protected trees in the amounts specified in the Ordinance And if replacement on the project site is not feasible, as may be the case for this Project, the applicant may pay in-lieu fees to the City's Tree Fund at the amounts determined by the City. **MM-BIO-5** is proposed to address the impact on protected tress, which is consistent with the City's tree ordinance. If appropriate and approved by the applicable regulatory agencies, the number of trees replaced to comply with the City's Protected Tress Ordinance pursuant to MM-BIO-5 would be counted towards the amount of required mitigation under MM-BIO-4.

**MM-BIO-5: Protection and Replacement of Protected Trees**

The Project shall voluntarily comply with the applicable provisions of the City of Cupertino's Protected Trees Ordinance (Cupertino Municipal Code Section 14.18). A tree removal permit shall be obtained for the removal of any "protected tree," and replacement plantings shall be provided as approved by the City. If permitted, as provided in Cupertino Municipal Code Section 14.18.160, an appropriate in-lieu tree replacement fee in the amount specified by Section 14.18.160 may be paid to the City of Cupertino's Tree Fund

as compensation for "protected trees" removed by the Project, where sufficient land area is not available on-site for adequate replacement as determined by a Certified Arborist and when approved by the City. The number of trees replaced to comply with the City of Cupertino's Protected Trees Ordinance would be counted towards the amount of required mitigation under MM-BIO-4 if approved by the applicable regulatory agencies.

In addition, Valley Water or its contractor shall retain a Certified Arborist to oversee construction and ensure the following measures are implemented to prevent harm to protected trees not identified for removal. A Certified Arborist is an individual certified by the International Society of Arboriculture.

- Adequate measures shall be defined to protect all trees to be preserved. These measures shall include the establishment of a tree protection zone (TPZ) around protected trees to be preserved that could be impacted by Project construction. No disturbance is permitted within the TPZ unless approved by the Certified Arborist. The TPZ shall be located at the dripline of the tree or 10 feet, whichever is greater. If necessary, the TPZ for construction-tolerant species (i.e., coast live oaks) may be reduced to 7 feet.
- Where feasible, temporary construction fencing shall be installed at the perimeter of TPZs prior to grubbing or grading. Where feasible, the bottom of the fencing should be elevated above the ground surface to allow for wildlife movement. Fences shall remain until all construction is completed. Fences shall not be relocated or removed without permission from the Certified Arborist.
- No grading, excavation, or storage of materials shall be permitted within TPZs.
- Where encroachment cannot be avoided, special construction techniques such as hand digging under roots shall be employed where necessary to minimize root injury. Work within the TPZ shall use the smallest equipment and operate from outside the TPZ. The Certified Arborist shall be on-site during all operations within the TPZ to monitor the activity.
- Any root pruning for trees to be preserved shall receive the prior approval of and be supervised by the Certified Arborist to ensure the long-term health of the tree. Roots shall be cut by manually digging a trench and cutting exposed roots with a sharp saw.
- All grading and construction plans shall clearly indicate trees proposed to be removed or otherwise affected by construction. The tree information in the construction plans should indicate the number, size, species, and assigned tree number of all trees that are to be retained/preserved.
- The contractor shall meet with the Certified Arborist before beginning work to discuss work procedures and tree protection.
- Trees to be preserved may require pruning to provide access and construction clearance. All pruning shall be completed by a State of California Licensed Tree Contractor and under the direction of a Certified Arborist in accordance with the 2002 BMPs for Pruning published by the International Society of Arboriculture, and adhere to the most recent editions of the American National Standard for Tree Care Operations (Section Z133.1) and Pruning (Section A300).
- In the unlikely event any protected tree not identified for removal is damaged in a manner that could result in tree mortality (as determined by a Certified Arborist),

the damage would be reported to the City of Cupertino and mitigation consistent with the Protected Trees Ordinance would be obtained.

Under **MM-BIO-5**, Valley Water will coordinate with the City to determine the tree replacement requirements, ~~or~~ pay the required in-lieu tree replacement fee to the City's Tree Fund prior to the start of construction, or some combination of the two. Valley Water will also ensure protected trees not identified for removal in the tree removal permits are not harmed by establishing no-work buffer zones and relying on a Certified Arborist to direct work (when appropriate) to minimize impacts. Therefore, with implementation of **MM-BIO-5**, impacts on protected trees would be reduced to a **less than significant** level.

**f) Would the Project conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional, or State HCP?**

There are no adopted HCPs or NCCPs covering the Project area. Therefore, the Project would not conflict with any adopted HCPs and there would be **no impact**.

# Cultural Resources

| Would the Project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5? | ☐ | ☐ | ☒ | ☐ |
| b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5? | ☐ | ☐ | ☒ | ☐ |
| c) Disturb any human remains, including those interred outside of formal cemeteries? | ☐ | ☐ | ☒ | ☐ |

# Regulatory Setting

## Federal

### *Section 106 of the National Historic Preservation Act*

Federal regulations for cultural resources are primarily governed by Section 106 of the National Historic Preservation Act (NHPA) of 1966, which applies to actions taken by federal agencies. The goal of the Section 106 review process is to offer a measure of protection to sites that are determined eligible for listing in the National Register of Historic Places (NRHP). Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties and affords the Federal Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment on such undertakings.

The Section 106 review process consists of four steps.

1. Initiate the Section 106 process by establishing the undertaking, developing a plan for public involvement, and identifying other consulting parties.
2. Identify historic properties (resources that are eligible for inclusion in the NRHP) by determining the scope of efforts, identifying cultural resources in the area potentially affected by the project, and evaluating resources' eligibility for NRHP inclusion.
3. Assess adverse effects by applying the Section 106 criteria of adverse effect to identified historic properties.
4. Resolve adverse effects by consulting with the State Historic Preservation Officer (SHPO) and other consulting agencies, including the ACHP if necessary, to develop an agreement that addresses the treatment of historic properties.

The Section 106 review for this Project is anticipated to be initiated by the USACE through the CWA Section 404 permit process. USACE would consult with the SHPO in order to determine and potentially resolve adverse effects on historic properties, if any.

### *National Register of Historic Places*

The NRHP is the nation's master inventory of known historic resources. It is administered by the National Park Service (NPS) in conjunction with the SHPO. The NRHP includes listings of buildings, structures, sites, objects, and districts that possess historic, architectural, engineering, archaeological, or cultural significance at the national, state, or local level. The NRHP criteria and associated definitions are outlined in National Register Bulletin 15, *How to Apply the National*

*Register Criteria for Evaluation* (U.S. Department of the Interior, National Park Service 1995). Resources (structures, sites, buildings, districts, and objects) more than 50 years of age can be listed in the NRHP provided they meet the evaluative criteria described below. However, properties less than 50 years of age that are of exceptional importance or are contributors to a district, and that also meet the evaluative criteria, can be included in the NRHP as well.

The NRHP includes four criteria under which a structure, site, building, district, or object can be considered significant for listing in the NRHP.

1. Resources associated with events that have made a significant contribution to the broad patterns of history.
2. Resources associated with the lives of persons significant in our past.
3. Resources that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.
4. Resources that have yielded or may likely yield information important in prehistory or history.

When evaluating a resource for potential eligibility for inclusion in the NRHP, one must evaluate and clearly state the significance of that resource to American history, architecture, archaeology, engineering, or culture. A resource can be individually significant if it meets any of the above-stated criteria; only one criterion needs to be met for the eligibility of the resource to be considered.

A resource may be considered eligible for listing on the NRHP if it meets one or more of the above-stated criteria for significance and possesses integrity. Historic properties must retain their integrity to convey their significance. The NRHP recognizes seven aspects or qualities, listed below, that define integrity including location, design, setting, materials, workmanship, feeling, and association. To retain historic integrity, a resource should possess several of the seven aspects. The retention of specific aspects of integrity is essential for a resource to convey its significance.

Resources that meet the criteria and have been determined eligible for the NRHP are protected under Section 106 of the NHPA when a proposed undertaking uses federal funds or requires a federal permit, license, or approval.

## State

### *California Environmental Quality Act*

CEQA uses the term *historical resources* to include buildings, sites, structures, objects, or districts, each of which may have historical, pre-historical, architectural, archaeological, cultural, or scientific importance. CEQA states that if implementation of a project would result in significant effects on historical resources, then alternative plans or mitigation measures must be considered; however, only significant historical resources need to be addressed (14 CCR Sections 15064.5 and 15126.4). Therefore, before impacts and mitigation measures can be identified, the significance of historical resources must be determined.

The State CEQA Guidelines define three ways that a property may qualify as a historical resource for the purposes of CEQA review.

1. The resource is listed in or determined eligible for listing in the California Register of Historic Resources (CRHR). Resources determined eligible for listing in the NRHP, established under the NHPA, are automatically considered eligible to the CRHR.

2. The resource is included in a local register of historical resources, as defined in PRC Section 5020.1[k] or identified as significant in a historical resource survey meeting the requirements of Section 5024.1[g] of the PRC, unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
3. The Lead Agency determines the resource to be significant, as supported by substantial evidence in light of the whole record (14 CCR Division 6, Chapter 3, Section 15064.5[a]).

Under CEQA, a substantial adverse change in the significance of a resource means the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the historical resource would be materially impaired. Actions that would materially impair the significance of a historical resource are any actions that would demolish or adversely alter the physical characteristics that convey the property's historical significance and qualify it for inclusion in the CRHR, the NRHP, or in a local register or survey that meets the requirements of PRC Sections 5020.1[k] and 5024.1[g].

### *California Register of Historical Resources*

All resources listed in or formally determined to be eligible for the NRHP are eligible for the CRHR. The CRHR is a listing of State of California resources that are significant within the context of California's history. The CRHR is a statewide program of similar scope to the NRHP. In addition, properties designated under municipal or county ordinances also are eligible for listing in the CRHR. A historic resource must be significant at the local, state, or national level under one or more of the criteria defined in the 14 CCR Chapter 11.5, Section 4850. Historic resources are broken down into four criteria:

- **Criterion 1 (Events)**: Resources that are associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States.
- **Criterion 2 (Persons)**: Resources that are associated with the lives of persons important to local, California, or national history.
- **Criterion 3 (Design/Construction)**: Resources that embody the distinctive characteristics of a type, period, region, or method of construction, or represent the work of a master, or possess high artistic values.
- **Criterion 4 (Archaeological/Source of New Information)**: Resources or sites that have yielded or have the potential to yield information important to the prehistory or history of the local area, California or the nation.

The CRHR criteria are similar to NRHP criteria and are tied to CEQA because any resource that meets the above criteria is considered a historical resource under CEQA.

## Local

### *City of Cupertino General Plan*

The City addresses cultural resources in the Land Use/ Community Design Element of the General Plan. This element discusses historical and archaeological resources and provides policies for preservation and mitigation of impacts to important cultural resources. There are no historic sites, commemorative sites, sites of historic mention, or community landmarks designated in the General Plan located in or adjacent to the Project area. Given the nature and location of the Project, policies related to historic preservation and cultural resources are not applicable to the Project.

# Existing Conditions

Valley Water conducted a records search and pedestrian survey for potential cultural resources present in the Project area and summarized their findings in a Cultural Resources Investigation Memorandum (**Appendix E;** Pacific Legacy 2018). The purpose of the investigation was to identify historic properties and/or historical resources that may be adversely affected by ground disturbing activities associated with the Project.

The investigation included a search of archives and records, consultation with the Native American Heritage Commission (NAHC), and a pedestrian inventory survey. A search of the California Historical Resources Information System was conducted by the Northwest Information Center (NWIC) on August 22, 2018. This search indicated that two prior archaeological studies overlapped with approximately 20% of the Project area; however, no previously recorded archaeological sites, buildings, or structures were noted. The NWIC reported a "moderate potential" for Native American and historic period archeological resources.

No prehistoric or historic period cultural resources were identified during the pedestrian survey. This survey area included "all exposed soils in the Calabazas Creek bed and the eroded banks on both the east and west sides of the creek between Miller Avenue and Bollinger Road," though particular attention was paid to the bank rehabilitation sites, creek bed, and access locations. Based on the results of the survey and an archival and records search, Pacific Legacy, Inc. archeologists determined there would be a low likelihood of encountering cultural resources during ground disturbing activities (Pacific Legacy 2018).

# Discussion

**a) and b) Would the Project cause a substantial adverse change in the significance of a historical or archeological resource pursuant to Section 15064.5?**

The Project could result in impacts to buried cultural resources during excavation associated with installation of riprap bank repairs and minor grading of banks above rehabilitation sites. The Project would involve ground disturbance into eroding creek banks at 10 locations, some of which have been previously modified through past bank protection efforts. Excavation would generally range from 0 to 8 feet into the banks, though excavation into the existing embankment may be greater at some locations where the bank is being recontoured at a gentler slope (i.e., Sites 6, 9, and 10). As described above, the Project area does not contain any known historic resources and the likelihood of encountering archeological resources during ground disturbing activities is considered low. A survey of the Project area was performed to identify potential historic resources eligible for listing in the NRHP and/or the CRHR. There are no buildings or structures in or near the Project area that meet the eligibility criteria for listing in the NRHP and/or CRHR. The survey also determined that "the Project is not expected to reveal buried cultural materials" (Pacific Legacy 2018). While unlikely, it is possible that archeological resources could be encountered during this ground disturbing work. Implementation of BMP CU-1 (*Accidental Discovery of Archeological Artifacts, Tribal Cultural Resources, or Burial Remains*) would avoid or minimize any potential impacts to historical resources by requiring work to stop if archeological resources are found, establishing a no-work buffer within 100 feet of the find, and following specific protocols for identification and evaluation of the find. Therefore, no substantial adverse change to a historic or archeological resource would occur and the impact would be **less than significant**.

**c) Would the Project disturb any human remains, including those interred outside of formal cemeteries?**

As described above, construction of the Project would result in relatively minor excavation of existing creek banks, generally in areas previously disturbed by bank maintenance activities. The potential for encountering human remains during construction would be low. A survey of the Project area intended to identify potential cultural and archaeological resources found no such resources within the Project area and determined that "the Project is not expected to reveal buried cultural materials" (Pacific Legacy 2018). While unlikely, the Project could uncover buried human remains during ground disturbing activities. Construction activities would comply with standard precautionary measures for the accidental discovery of burial remains, consistent with BMP CU-1 (*Accidental Discovery of Archeological Artifacts, Tribal Cultural Resources, or Burial Remains*). Therefore, the Project would not disturb any human remains and the impact would be **less than significant**.

# Energy

| Would the Project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during Project construction or operation? | ☐ | ☐ | ☐ | ☒ |
| b) Conflict with or obstruct a State or local plan for renewable energy or energy efficiency? | ☐ | ☐ | ☐ | ☒ |

## Regulatory Setting

In accordance with CEQA and Appendix F, Energy Conservation, of the 2019 CEQA Guidelines, and to assure that energy implications are considered in project decisions, EIRs are required to include a discussion of the potential significant energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. Appendix F of the CEQA Guidelines provides a list of energy-related topics to be analyzed in the EIR. In addition, while not described or required as significance thresholds for determining the significance of impacts related to energy, Appendix F provides topics for consideration in the discussion of energy use in an EIR, to the extent the topics are applicable or relevant to the project. While this document is an MND, a discussion of the potential significant energy impacts of the Project are included below.

The City of Cupertino's General Plan includes energy policies; however, these policies are related to energy procurement and efficiency in buildings and new development and are therefore not applicable to the Project.

## Existing Conditions

California's energy system includes electricity, natural gas, and petroleum. According to the California Energy Commission, California's energy system generates 71 percent of the electricity, 10 percent of the natural gas, and 31 percent of the petroleum consumed or used in the State. The rest of the State's energy and energy sources are imported, and includes electricity from the Pacific Northwest and the Southwest; natural gas purchases from Canada, the Rocky Mountain states, and the southwest; and petroleum imported from Alaska and foreign sources (CEC 2019a; 2019b; and 2019c).

California has one of the most progressive Renewable Portfolio Standard policies in the country, requiring that all utilities in the State supply 60 percent of their retail electric sales from eligible renewable energy resources by 2030 and putting the State on a path to 100 percent fossil-fuel free electricity by 2045 (California Public Utilities Commission 2019).

There is no existing electricity or natural gas use in the Project area.

# Discussion

**a) Would the Project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during Project construction or operation?**

Construction of the Project would require temporary use of fuel for vehicles and equipment, and electrical energy use during construction would be negligible. If maintenance of the bank rehabilitation sites is required during Project operation, this work would be minor and infrequent, and result in negligible energy use. There would be **no impact**.

**b) Would the Project conflict with or obstruct a State or local plan for renewable energy or energy efficiency?**

The Project would not include the development or demolition of any buildings. There would be no operational energy use after the bank protection work is completed. Energy and energy efficiency/conservation standards or codes, such as the California Building Standards or California Energy Code, are not applicable to the Project. Given the nature of the Project, it would not conflict with or obstruct California's Renewable Portfolio Standard and **no impact** would occur.

# Geology and Soils

| Would the Project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:<br>i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. | ☐ | ☐ | ☐ | ☒ |
| ii) Strong seismic ground shaking? | ☐ | ☐ | ☒ | ☐ |
| iii) Seismic-related ground failure, including liquefaction? | ☐ | ☐ | ☒ | ☐ |
| iv) Landslides? | ☐ | ☐ | ☒ | ☐ |
| b) Result in substantial soil erosion or the loss of topsoil? | ☐ | ☐ | ☒ | ☐ |
| c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse? | ☐ | ☐ | ☒ | ☐ |
| d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property? | ☐ | ☐ | ☒ | ☐ |
| e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of waste water? | ☐ | ☐ | ☐ | ☒ |
| f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? | ☐ | ☐ | ☒ | ☐ |

# Regulatory Setting

## Alquist-Priolo Earthquake Fault Zoning Act

California's Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) (PRC Section 2621 et seq.), originally enacted in 1972 as the Alquist-Priolo Special Studies Zones Act and renamed in 1994, is intended to reduce the risk to life and property from surface fault rupture during earthquakes. The Alquist-Priolo Act prohibits the location of most types of structures intended for human occupancy across the traces of active faults and strictly regulates construction in the

corridors along active faults (earthquake fault zones). It also defines criteria for identifying active faults, giving legal weight to terms such as active, and establishes a process for reviewing building proposals in and adjacent to earthquake fault zones.

Under the Alquist-Priolo Act, faults are zoned and construction along or across them is strictly regulated if they are "sufficiently active" and "well defined." A fault is considered sufficiently active if one or more of its segments or strands shows evidence of surface displacement during Holocene time (defined for purposes of the act as referring to approximately the last 11,000 years). A fault is considered well defined if its trace can be clearly identified by a trained geologist at the ground surface or in the shallow subsurface, using standard professional techniques, criteria, and judgment.

### Seismic Hazards Mapping Act

Similar to the Alquist-Priolo Act, the Seismic Hazards Mapping Act of 1990 (PRC Sections 2690–2699.6) is intended to reduce damage resulting from earthquakes. Although the Alquist-Priolo Act addresses surface fault rupture, the Seismic Hazards Mapping Act addresses other earthquake-related hazards, including strong ground shaking, liquefaction, and seismically induced landslides. Its provisions are similar in concept to those of the Alquist-Priolo Act (i.e., the State is charged with identifying and mapping areas at risk of strong ground shaking, liquefaction, landslides, and other corollary hazards, and cities and counties are required to regulate development within mapped seismic hazard zones).

A primary purpose of the Seismic Hazards Mapping Act is to assist cities and counties in preparing the safety elements of their general plans and encourage land use management policies and regulations that reduce seismic hazards. The intent of this act is to protect the public from the effects of strong ground shaking, liquefaction, landslides, ground failure, or other hazards caused by earthquakes. Under the Seismic Hazards Mapping Act, permit review is the primary mechanism for local regulation of development. Specifically, cities and counties are prohibited from issuing development permits for sites within seismic hazard zones until appropriate site-specific geologic and/or geotechnical investigations have been carried out and measures to reduce potential damage have been incorporated into the development plans. In addition, the California Geologic Survey's Special Publication 117A, Guidelines for Evaluating and Mitigating Seismic Hazards in California, provides guidance for evaluating earthquake-related hazards for projects in designated zones with required investigations and recommending mitigation measures, as required by PRC Section 2695(a).

Liquefaction hazards mapping has been conducted for the part of the Bay Area that includes the Project area.

## Existing Conditions

### Regional Geologic Setting

The San Francisco Bay region is one of the most seismically active areas in North America and is dominated by the San Andreas Fault system. This fault system movement is distributed across a complex system of generally strike-slip right-lateral parallel and sub-parallel faults including San Andreas, San Gregorio, Hayward and Calaveras. A major earthquake at any of these sites could produce a strong ground shaking in the Project area.

### *Liquefaction*

Liquefaction is the transformation of saturated, loose, fine grained sediment to a fluid-like state because of earthquake shaking or other rapid loading. Soils most susceptible to liquefaction are loose to medium dense, saturated sands, silty sands, sandy silts, non-plastic silts and gravels with poor drainage, or those capped by or containing seams of impermeable sediment. According to the liquefaction hazard maps prepared for the United States Geological Service (USGS), the liquefaction probability in the Project area for a magnitude 7.8 earthquake on the San Andreas Fault would be between 0 and 5 percent (Holzer, T.L., et al., 2008). The Project area is in a County-designated liquefaction hazard zone, as all major creeks are considered susceptible to liquefaction (Santa Clara County 2002).

### *Alquist-Priolo Fault Zone*

The Project area is not located within a State-designated Alquist-Priolo Earthquake Fault Zone, where site-specific studies addressing the potential for surface fault rupture are required, and no known active faults traverse the site. The nearest Alquist-Priolo Earthquake Fault Zones are associated with the San Andreas Fault Zone, which is located approximately 5 miles west of the site (City of Cupertino 2015). Two additional faults closely associated with the San Andreas fault, the Monta Vista-Shannon and Sargent-Berrocal fault systems, occur approximately 1 and 3 miles west of the Project area, respectively. The project site is not located within a county-designated fault rupture zone (Santa Clara County 2002).

### *Seismicity*

The Project area and the entire Bay Area is in a seismically active region subject to strong seismic ground shaking. Ground shaking is a general term referring to all aspects of motion of the earth's surface resulting from an earthquake and is normally the major cause of damage in seismic events. The extent of ground-shaking is controlled by the magnitude and intensity of the earthquake, distance from the epicenter, and local geologic conditions.

### *Soils*

Soils along Calabazas Creek in the Project area are comprised of approximately half El Palo Alto complex on 0 to 2 percent slopes, and half Stevens Creek complex on 0 to 2 percent slopes (National Resource Conservation Service 2015). Both soil complexes are found on alluvial fans and stream terraces with predominantly well-drained, sandy/silty clay loams. The Project area is not located within a County-designated compressible soils hazard zone (Santa Clara County 2002).

### *Lateral Spreading*

Liquefaction-induced lateral spreading has been defined as the lateral displacement of large surficial blocks of soil as a result of liquefaction in a subsurface layer. Lateral spreading refers to more moderate movements of gently sloping ground due to soil liquefaction. Liquefaction-induced lateral spreading occurs on mild slopes of 0.3 to 5 percent underlain by loose sand and shallow water. As stated in the Seismic Hazards Report for the Cupertino quadrangle, "the potential for ground failure resulting from liquefaction-induced lateral spreading of alluvial materials…is not specifically addressed by the earthquake-induced landslide zone or this report" (Clahan et. al. 2006).

## Paleontological Resources

Paleontological resources are the fossilized remains of plants and animals, including vertebrates (animals with backbones), invertebrates (e.g., starfish, clams, ammonites, and marine coral),

microscopic plants and animals (microfossils), and trace fossils (footprints, burrows, etc.). Fossils are preserved in sedimentary rocks, which are the most abundant rock type exposed at the surface of the earth. The geologic formation that underlies the Project area shows that the region is classified as consisting of Qa.1 (alluvial sand, fine-grained silt, and gravel; where differentiated represents alluvial fan deposits at base of slopes and upper fan areas) and Qa.2 (alluvial gravel, sand, silt, and clay; represents younger stream alluvium in fan deposits). The University of California Museum of Paleontology (UCMP) database was searched for fossil locations in Santa Clara County and the search did not identify any fossil sites from Holocene formations (UCMP 2019).

# Discussion

**a) Would the Project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:**

**i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?**

Surface rupture occurs when the ground surface is broken due to fault movement during an earthquake. The location of surface rupture generally can be assumed to be along an active or potentially active major fault trace. The Project area is located outside of the limits of any State-designated Alquist-Priolo Special Studies Zone (CDC 2002a) and approximately 5 miles west of the San Andreas Fault. The Monta Vista-Shannon and Sargent-Berrocal fault systems, occur approximately 1 and 3 miles west of the Project area, respectively. The Project area is not accessible by the public, and the Project would not expose people working at the Project site or structures to potential substantial adverse effects related to the rupture of a known earthquake fault. Given the small-scale construction activities and distance from the nearest fault lines, the Project would not exacerbate existing seismic hazards or expose additional people to potential adverse effects during seismic activity. Therefore, **no impact** would occur.

**ii) Strong seismic ground shaking?**

Due to the Project's proximity to multiple fault lines, there is an underlying risk of ground shaking from earthquakes. An earthquake along one of the faults within the Bay Area could induce ground shaking in the Project area. The Project would be designed following standard engineering and construction techniques intended to address seismic risks, ensuring that the sheet pile walls are constructed to withstand strong seismic ground shaking. Valley Water conducted a geotechnical investigation that provided site-specific information about underlying substrates in order to design safe and stable sheet pile walls. The Project area is not accessible by the public, and the Project would not expose people working at the Project site to additional risk during strong seismic ground shaking. Therefore, a **less than significant** impact is anticipated.

**iii) Seismic-related ground failure, including liquefaction?**

Due to the Project's location along a creek, the Project area is located within a Liquefaction Zone (CDC 2002). The Cupertino Quadrangle's Seismic Hazards Zonation Program states that "liquefaction may occur in water-saturated sediment during moderate to great earthquakes" (Clahan et. al. 2006). While there is the potential for liquefaction to occur at the site due to water-saturated sediment along streams, Calabazas Creek is typically dry during the work window. There is currently no public access to the Project area, and the

Project would not provide new public access or involve the construction of any buildings that would be susceptible to damage from liquefaction. Therefore, there would be no increase in the number of people who would be exposed to the adverse effects of liquefaction. The sheet pile walls and riprap bank repairs would be designed and constructed according to standard engineering practices that minimize seismic risks. Therefore, the impact would be **less than significant**.

**iv) Landslides?**

The topography in the Project vicinity is generally flat and the Project area is not located within a Landslide Hazard Zone (CDC 2002b). However, creek banks in the Project area are steep and susceptible to minor erosion. Workers would stabilize the creek banks with the use of heavy equipment and would generally be protected from any falling rocks or debris. Workers would be required to comply with general safety measures to ensure risks of injury, including from landslides, are minimized. Therefore, the potential to expose construction workers to risks related to the instability of creek banks during construction would be minimal. The public does not have access to the Project area. After construction is complete, the creek banks would be less susceptible to erosion, slides, and bank failure. Therefore, the impact would be **less than significant**.

**b) Would this Project result in substantial soil erosion or the loss of topsoil?**

During construction, the Project could result in temporary soil erosion on exposed or graded surfaces; however, the Project is intended to stabilize eroding creek banks through installation of riprap and sheet pile walls, which would substantially reduce the potential for erosion in the Project area. Graded bank slopes above the riprap or sheet pile walls, such as at Sites 6, 7, 9 and 10, would be compacted and hydroseeded to reduce the potential for erosion. Furthermore, BMPs would be employed (i.e., BMPs WQ-2 [*Limit Impacts from Staging and Stockpiling Materials*], WQ-3 [*Use Seeding for Erosion Control, Weed Suppression, and Site Improvement*], and WQ-10 [*Prevent Stormwater Pollution*]) to minimize construction-related erosion. The Project would obtain coverage for discharge of stormwater from the construction area under the Construction General Permit (Order 2009-0009-DWQ) issued by the State Water Resources Control Board. The Construction General Permit requires preparation of a stormwater pollution prevention plan (SWPPP) by a qualified professional and implementation of the SWPPP throughout the construction period, which would ensure proper site drainage and prevent the erosion of soils and loss of topsoil. Therefore, the impact for soil erosion or loss of topsoil would be **less than significant**.

**c) Would the Project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?**

As explained in sections **a-i)** and **a-iv),** the Project's location and flat topography above the creek banks makes the possibility of a substantial landslide or ground collapse unlikely. While the Project area is located within a liquefaction zone and could be susceptible minor bank failures, which are common in creek environments, the risk of these seismic hazards would be minimized by the Project's use of structurally sound design and construction practices intended to account for such risks. Valley Water conducted a geotechnical investigation that provided site-specific information about underlying substrates in order to develop a safe and stable Project design. The bank rehabilitation work would not significantly change the loading on underlying soils. The Project is designed to stabilize the eroding creek banks and therefore would not create an unstable condition which could potentially result in landslide, lateral

spreading, subsidence, liquefaction or collapse. Additionally, the Project does not include the construction of any buildings that would be susceptible to these instability concerns. The impact would be **less than significant**.

**d) Would the Project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?**

Expansion and contraction can occur when expansive soils undergo alternating cycles of wetting (swelling) and drying (shrinking). During these cycles, the volume of the soil changes markedly. Expansive soils are common throughout California and can cause damage unless properly treated during construction. The Project does not include the construction of any structures that could expose people or property to risks associated with damage from expansive soils, if present, as the Project would strengthen and protected existing eroding banks. Furthermore, excavation into existing soils would be minor, further reducing any potential risks posed by expansive soils. There is no public access to the Project area. Regardless, the Project would be constructed according to industry standard geotechnical practices which would minimize any potential damage from expansive soils. Therefore, the impact would be **less than significant**.

e) **Would the Project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?**

The Project would not utilize septic tanks or require wastewater disposal systems and would not use a sewer system. Therefore, **no impact** would occur.

f) **Would the Project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?**

Construction would require minor excavation during into underlying native substrates for the installation of riprap. Based on a search of the UCMP database, the Project area is not known to contain paleontological resources. The geology and soils on the project site are common throughout the region and are not considered to be unique. Additionally, the Project area has been subject to prior bank repair work and no paleontological or geologic features have been discovered and documented. There is a low likelihood of encountering paleontological resources or unique geologic features during Project construction. Therefore, the impact would be **less than significant**.

# Greenhouse Gas Emissions

| Would the Project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? | ☐ | ☐ | ☒ | ☐ |
| b) Conflict with any applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? | ☐ | ☐ | ☐ | ☒ |

# Regulatory Setting

## Assembly Bill 32

The California State Legislature adopted Assembly Bill (AB) 32 in 2006. AB 32 focuses on reducing greenhouse gases (GHGs; $CO_2$, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) to 1990 levels by the year 2020. Pursuant to the requirements in AB 32, ARB adopted the Climate Change Scoping Plan (Scoping Plan) in 2008, which outlines actions recommended to obtain that goal. The Scoping Plan calls for an "ambitious but achievable" reduction in California's GHG emissions, cutting approximately 30 percent from business as usual emission levels projected for 2020, or about 10 percent from today's levels.

On a per-capita basis, that means reducing annual emissions of 14 tons of $CO_2$ for every person in California down to about 10 tons per person by 2020. In October 2010, ARB prepared an updated 2020 forecast to account for the recession and slower forecasted growth. The forecasted inventory without the benefits of adopted regulation is now estimated at 545 million metric tons (MT) of $CO_2$ equivalents[4] ($CO_2e$). Therefore, under the updated forecast, a 21.7 percent reduction from business as usual is required to achieve 1990 levels.

## Bay Area Air Quality Management District

The BAAQMD has not adopted significance thresholds for construction related GHG emissions. However, the BAAQMD has included in its CEQA Guidelines stationary and operational-related thresholds for the emission of GHG shown in **Table 4-7.**

[4] GHG emissions are typically measured in terms of pounds or tons of "$CO_2$ equivalents" ($CO_2e$). For example, sulfur hexafluoride is 22,800 times more potent at contributing to global warming than $CO_2$.

**Table 4-7.** BAAQMD Greenhouse Gas Thresholds of Significance

| Project Type | Construction-Related | Operational-Related[3] |
|---|---|---|
| Projects other than Stationary Sources[1] | None | Compliance with Qualified GHG Reduction Strategy<br>or<br>1,100 MT of $CO_2e$/yr.<br>or<br>4.6 MT of $CO_2e$/SP[2]/yr. (residents+employees) |
| Stationary Sources[1] | None | 10,000 MT of $CO_2e$/yr. |

Notes:

1. According to the BAAQMD CEQA Guidelines, a stationary source project is one that includes land uses that would accommodate processes and equipment that emits GHG emissions and would require a BAAQMD permit to operate. projects other than stationary sources are land use development projects including residential, commercial, industrial, and public uses that do not require a BAAQMD permit to operate.
2. SP = service population (residents + employees)
3. If annual emissions of operational-related GHGs exceed these levels, the Project would result in a cumulatively considerable contribution of GHG emissions and a cumulatively significant impact to global climate change.

Source: BAAQMD, CEQA Air Quality Guidelines, May 2017

### State and Local Plans

California has one of the most progressive Renewable Portfolio Standard policies in the country, requiring that all utilities in the state supply 60 percent of their retail electric sales from eligible renewable energy resources by 2030 and putting the state on a path to 100 percent fossil-fuel free electricity by 2045 (California Public Utilities Commission 2019). The City of Cupertino's Climate Action Plan (CAP) is intended to guide the city towards its goals of achieving "a 15% reduction in carbon emissions by the year 2020, 49% reduction by 2035 and 83% by 2050" (City of Cupertino 2015b). Increasing renewable energy use is one of the city's reduction methods.

## Existing Conditions

Global climate change is the observed increase in the average temperature of the Earth's atmosphere and oceans in recent decades. The Earth's average near-surface atmospheric temperature rose 0.6 ± 0.2 degrees Celsius (°C) or 1.1 ± 0.4° Fahrenheit (°F) in the 20th century. The prevailing scientific opinion on climate change is that most of the warming observed over the last 50 years is attributable to human activities. The increased amounts of $CO_2$ and other GHGs are the primary causes of the human-induced component of warming. GHGs are released by the burning of fossil fuels, land clearing, agriculture, and other activities, and lead to an increase in the greenhouse effect. GHGs are present in the atmosphere naturally, are released by natural sources, or are formed from secondary reactions taking place in the atmosphere. The gases that are widely seen as the principal contributors to human-induced global climate change include:

- $CO_2$
- Methane
- Nitrous oxide
- Hydrofluorocarbons
- Perfluorocarbons
- Sulfur Hexafluoride

Over the last 200 years, humans have caused substantial quantities of GHGs to be released into the atmosphere. These emissions are increasing GHG concentrations in the atmosphere, and enhancing the natural greenhouse effect, which is believed to be causing global warming. While manmade GHGs include naturally occurring GHGs such as $CO_2$, methane, and nitrous oxide, some gases, like hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride are completely new to the atmosphere.

Certain gases, such as water vapor, are short-lived in the atmosphere. Others remain in the atmosphere for significant periods of time, contributing to climate change in the long term. Water vapor is excluded from the list of GHGs above because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation.

These gases vary considerably in terms of global warming potential, which is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The global warming potential is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and length of time that the gas remains in the atmosphere ("atmospheric lifetime"). The global warming potential of each gas is measured relative to carbon trapped by one-unit mass of the GHG to the ratio of heat trapped by one-unit mass of $CO_2$ over a specified time period.

# Discussion

**a) Would the Project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?**

Project construction would temporarily generate GHG emissions from the use of fossil fuel-powered vehicles and equipment. These emissions would occur only when construction equipment is in operation, or when worker or vendor vehicles are driving to or from the Project area. Methane would also be emitted during the fueling of heavy equipment. Exhaust emissions from construction activities would vary as construction intensity changes. Construction emissions would be limited to the Project's 12 months of construction, spread across 2 years.

The BAAQMD has not adopted thresholds of significance for construction related GHG emissions in their CEQA Air Quality Guidelines. However, lead agencies are encouraged to quantify and disclose GHG emissions that would occur during construction. Based on modeling conducted for the Project (**Appendix B**), the GHG emissions would be approximately 346 MT of $CO_2e$ during the 2-year construction period, or an average of 173 MT of $CO_2e$ for each construction year.[5] Given the temporary nature of these emissions and the low intensity of construction, the impact from construction GHG emissions would not result in a significant impact on the environment.

Once operational, the Project would not directly generate GHGs in excess of existing conditions, as Valley Water currently performs periodic inspections and maintenance in the Project area under the SMP. Any maintenance of the bank rehabilitation sites would be minor and infrequent, generating negligible GHG emissions. As a result, pre- and post-Project

[5] After the draft MND was released, minor refinement of the Project description resulted in slightly less area of earth disturbance and excavation/backfill required to construct the Project. While the estimated number of construction haul trips would remain unchanged, the GHG emissions from the use of heavy equipment would be slightly reduced. Accordingly, it was not necessary to update the emissions modeling or the GHG analysis in the Final MND.

operational emissions would be unchanged or less, given the reduced need for maintenance in the Project area after work is complete. Therefore, the impacts from construction and operational GHG emissions would be **less than significant**.

**b) Would the Project conflict with any applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?**

The Project would not conflict with any applicable plan, policy, or regulation concerning GHGs. The Project was compared with the AB 32 Scoping Plan in order to determine compliance with any applicable plan, policy, or regulation adopted to reduce emissions of GHGs. The Scoping Plan contains a variety of strategies to reduce the State's emissions. The strategies in AB 32 are not applicable to the Project as the Project includes creek bank rehabilitation and would not result in additional operational emissions, such as through the construction of buildings or other new development. The City of Cupertino's CAP includes measures for construction waste diversion, but these measures are not applicable to the Project as they relate to building permits. The CAP also includes a measure to encourage planting of trees to support the urban forest, including through landscaping requirements. The Project would be consistent with this measure by obtaining tree removal permits and replacing removed trees covered under the City's *Protected Tree Ordinance* (see the *Biological Resources* section, above). Therefore, the Project would not conflict with the AB 32 Scoping Plan or the City of Cupertino CAP and there would be **no impact**.

# Hazards and Hazardous Materials

| Would the Project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Create a significant hazard to the public or the environment through the routine transport, use, storage or disposal of hazardous materials? | ☐ | ☐ | ☒ | ☐ |
| b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? | ☐ | ☐ | ☒ | ☐ |
| c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within ¼ mile of an existing or proposed school? | ☐ | ☐ | ☒ | ☐ |
| d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? | ☐ | ☐ | ☐ | ☒ |
| e) For a project located within an airport land use plan or, where such plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area? | ☐ | ☐ | ☐ | ☒ |
| f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? | ☐ | ☐ | ☒ | ☐ |
| g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires? | ☐ | ☐ | ☐ | ☒ |

# Regulatory Setting

## State

### *Hazardous Waste Management*

In California, the Department of Toxic Substances Control (DTSC) administers the federal Resource Conservation and Recovery Act (RCRA) program, as well as additional state-specific requirements for managing hazardous waste in accordance with the California Hazardous Waste Control Law (Section 25100 et seq.). The State criteria for identifying hazardous waste are based on characteristics of toxicity, flammability, reactivity, and corrosiveness. These criteria are broader than the RCRA hazardous waste criteria; therefore, hazardous wastes in California can be identified as either RCRA hazardous waste or non-RCRA hazardous waste.

### *Hazardous Materials Management*

In California, hazardous waste and materials handling are regulated under the Unified Program. The Unified Program consolidates the administrative requirements, permits, inspections, and enforcement activities for existing programs, as established by different state agencies. The

Unified Program requires that facilities properly manage hazardous materials and disclose information regarding such materials to minimize the risk of a hazardous materials release and improve emergency response actions in the event of a release. The California Environmental Protection Agency (Cal/EPA) oversees the entire program and local government agencies, known as Certified Unified Program Agencies, implement and enforce the elements of the Unified Program.

***Hazardous Materials Transportation***

The California Highway Patrol, California Department of Transportation, and DTSC are responsible for enforcing federal and State regulations pertaining to the transportation of hazardous materials. If a discharge or spill of hazardous materials occurs during transportation, the transporter is required to take appropriate immediate action to protect human health and the environment (e.g., notify local authorities and contain the spill), and is responsible for the discharge cleanup (22 CCR Section 66260.10 et seq.).

***Hazardous Materials Release Sites***

In California, the U.S. EPA has granted most enforcement authority of federal hazardous materials regulations to Cal/EPA. Under the authority of Cal/EPA, the State Water Resources Control Board (SWRCB) and DTSC are responsible for overseeing the remediation of contaminated soil and groundwater sites. The provisions of Government Code 65962.5 (also known as the Cortese List) require the SWRCB, DTSC, California Department of Health Services, and California Department of Resources Recycling and Recovery (CalRecycle) to submit information pertaining to sites associated with solid waste disposal, hazardous waste disposal, and hazardous materials releases to Cal/EPA.

***Worker Health and Safety***

State worker health and safety regulations related to construction activities are enforced by Cal/OSHA. Regulations include requirements for protective clothing, training, and limits on exposure to hazardous materials. Cal/OSHA also enforces occupational health and safety regulations specific to lead and asbestos investigation and abatement: these regulations equal or exceed their federal counterparts. Specific worker safety measures for excavation hazards (e.g., falling or cave-in of the excavation wall) are described in 8 CCR Section 1541.

***California Emergency Services Act***

The Emergency Services Act supports the State's responsibility to mitigate adverse effects of natural, manmade, or war-caused emergencies that threaten human life, property, and environmental resources of the State. The act aims to protect human health and safety and to preserve the lives and property of the people of the State. The act provides the Office of Emergency Services (OES) with the authority to prescribe powers and duties supportive of the act's goals. In addition, the act authorizes the establishment of local organizations to carry out the provisions through necessary and proper actions.

California has developed an emergency response plan to coordinate emergency services provided by federal, State, and local governments and private agencies. Responding to hazardous materials incidents is one part of this plan. The plan is administered by the California OES, which coordinates the responses of other agencies. County Offices of Emergency Services coordinate response to emergencies in the individual counties in the state. Emergency Response Team members respond and work with local fire and police agencies, emergency medical providers, California Highway Patrol, CDFW, and the California Department of Transportation.

## Local

### *City of Cupertino General Plan*

The Health and Safety Element of the City of Cupertino General Plan includes policies relating to public health and safety (City of Cupertino 2015a). Relevant policies are included in **Table 4-8**.

**Table 4-8.** Cupertino General Plan Policies Related to Hazards and Hazardous Materials

| Policy | Description |
|---|---|
| HS-6.1: Hazardous Materials Storage and Disposal | Require the proper storage and disposal of hazardous materials to prevent leakage, potential explosions, fire or the release of harmful fumes. Maintain information channels to the residential and business communities about the illegality and danger of dumping hazardous material and waste in the storm drain system or in creeks. |
| HS-6.5: Hazardous Waste Disposals | Continue to support and facilitate, for residences and businesses, a convenient opportunity to properly dispose of hazardous waste. |
| HS-7.5: Hillside Grading | Restrict the extent and timing of hillside grading operations to April through October except as otherwise allowed by the City. Require performance bonds during the remaining time to guarantee the repair of any erosion damage. Require planting of graded slopes as soon as practical after grading is complete. |

Source: City of Cupertino 2015a

# Existing Conditions

## Hazardous Materials

The Project area is located in the Calabazas Creek corridor from Miller Avenue to Bollinger Road between low density residential and public parks. Existing activities within the Project area do not include the storage, use, transportation, or disposal of any hazardous materials. Existing maintenance work in the Project reach does not create circumstances where people or the environment are exposed to hazardous materials. The Project area is not on a State listed hazardous materials clean-up site.

According to the DTSC EnviroStor database, the nearest hazardous waste site is the Sedgwick Elementary School Site, which is located approximately 0.3 mile east of the Project area. Historically, this site and surrounding areas were used as an orchard with two small single room dwellings on the site. The site was later developed as residential property and the Cupertino School District plans to expand the adjacent elementary school onto the site. In 2014, a Phase I Environmental Site Assessment was completed that found chlordane and lead in soil around the perimeter of existing building structures. In February 2019 the DTSC confirmed that all response actions have been completed and no further remediation actions are necessary (DTSC 2020). The SWRCB GeoTracker database does not list any open leaking underground storage tanks or solid waste disposal sites within 1 mile of the Project area.

## Sensitive Receptors

The nearest sensitive receptors include the residential properties and Creekside Park, which occur adjacent to the Project area. Creekside Park includes athletic fields, which occur adjacent to Sites 2 and 3, approximately 50 feet west of the work area. Aside from these residences and parks, the nearest sensitive receptors to the Project area include the Purglen of Cupertino Assisted Living Facility located approximately 550 feet east of the Project area, the Kaiser Permanente Hospital located 0.25-mile north, and three schools located between 0.2- and 0.3-mile east.

### Fire Hazard Severity Zone

The California Department of Forestry and Fire Protection (CalFire) has mapped Very High Fire Hazard Severity Zones in Santa Clara County to help responsible local agencies, such as fire protection districts and fire departments, identify measures to reduce the potential for loss of life, property, and resources from wildland fire. The Project area is located within the Local Responsibility Area (LRA) and is not considered a very high fire hazard severity zone (CalFire 2008).

### Aviation Hazards

The nearest public use airport to the Project area is the Norman Y. Mineta San Jose International Airport, located approximately 5 miles northeast of the Project area. The Project area does not fall within the airport influence area for any public airports.

### Emergency Response and Evacuation

Per the County of Santa Clara and City of Cupertino Emergency Operations Plans, there are no designated emergency evacuation routes within the Project area (City of Cupertino 2019d).

## Discussion

**a) Would the Project create a significant hazard to the public or the environment through the routine transport, use, storage or disposal of hazardous materials?**

During Project construction, limited quantities of miscellaneous hazardous substances (e.g., petroleum-based fluids, solvents, and lubricants typical of construction projects) would be used and stored at the Project area, presenting the potential for an accidental release during handling and transfer. Such an accidental release could pose a hazard to construction workers, users of Creekside Park (should a spill occur in the staging area), and the environment. However, risks associated with the use of hazardous substances would be limited by Valley Water BMPs, including measures requiring proper management of hazardous materials and spill prevention procedures (i.e., BMPs HM-1, HM-3, HM-4, HM-5, HM-6, and HM-7). Valley Water would also be required to obtain a permit under CWA Section 401 from the RWQCB that would reinforce these BMPs and minimize the possibility of risks from hazardous materials. Additionally, preparation and implementation of a site-specific SWPPP, as described in further detail in under *Hydrology and Water Quality*, would be required for the Project. SWPPPs have been widely demonstrated to minimize the potential exposure of construction workers and the environment to hazardous materials. Once completed, the Project would not involve the routine transport, use, storage, or disposal of hazardous materials other than for the occasional minor maintenance work, consistent with existing maintenance in the Project area. The impact would be **less than significant**.

**b) Would the Project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?**

Construction and maintenance activities would include the use of limited quantities of ordinary equipment fuels and fluids. These materials would not be used in quantities that would pose a substantial threat to human or environmental health. Consistent with Valley Water BMPs, materials would be used in a manner that minimizes the risk of accidental spills and would be properly stored when not in use. In the unlikely event of a spill, fuels and or other hazardous materials would be controlled and disposed of in accordance with applicable regulations. During operation, hazardous materials may be occasionally utilized for routine Project

maintenance but would be used in small amounts that would not pose a threat to the public or environment. The use of hazardous materials during Project operation would be the same as under existing maintenance of the Project area or less, given the reduced need for maintenance. The impact would be **less than significant**.

**c) Would the Project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within ¼ mile of an existing or proposed school?**

The Project are is located adjacent to existing residences and Creekside Park. Three schools located between 0.2- and 0.3-mile east of the Project area (Cupertino High School, Sedgwick Elementary School, and Hyde Middle School). Construction and maintenance activities would include the use of limited quantities of ordinary equipment fuels and fluids, but these materials would not be used in quantities that would pose a substantial threat to human health. The Project would not emit hazardous emissions. However, Valley Water would implement a number of BMPs (see above) to minimize the potential of releasing hazardous materials during construction. Therefore, the Project would have a **less than significant** impact on the public, including schools, from hazardous emissions or materials.

**d) Would the Project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?**

The nearest hazardous materials site is the Sedgwick Elementary School Site, which is located approximately 0.3 mile east of the Project area. There are no sites, including sites compiled pursuant to Government Code Section 65962.5, in the Project area. Therefore, the Project would not create a significant hazard to the public or the environment as a result of location on a hazardous materials site. **No impact** would occur.

**e) For a Project located within an airport land use plan or, where such plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?**

The Project is not located within an airport land use plan or within 2 miles of a public airport or public use airport. The nearest airport to the Project area is the Norman Y. Mineta San Jose International Airport, which is located approximately five miles northeast of the site. The Project would not alter existing land uses and therefore the Project would not result in a safety hazard for people in the Project area. **No impact** would occur.

**f) Would the Project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?**

According to the County of Santa Clara and City of Cupertino Emergency Operations Plans, there are no designated emergency evacuation routes in the Project area. The Project would result in minimal vehicle trips related to worker and vendor commute traffic, haul trips for the import and export of material, and the movement of construction equipment to the Project area. As described in the Transportation/Traffic section, the Project would not result in substantial traffic delays, as traffic flow would be maintained within the Project area. BMP TR-1 (*Incorporate Public Safety Measures*), would be incorporated into the Project, which requires fences, barriers, lights, flagging, guards, and signs to be installed to give adequate warning to the public of construction activities and dangerous conditions. Traffic flow on adjacent roadways may be temporarily delayed due to haul trucks, but this delay would be brief and would only occur as haul trucks enter and exit the Project area. Valley Water would coordinate with surrounding uses to ensure that access for emergency vehicles is maintained at all times

during construction activities. Therefore, implementation of the Project is not anticipated to impede emergency access to the Project area and/or surrounding area, and the impact would be considered a **less than significant**.

**g) Would the Project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?**

The Project is not located in a locally determined Moderate, High, or Very High Fire Hazard Severity Zone, indicating that the probability of a wildfire at the Project area is very low. The Project area is not within a Wildland Urban Interface Zone (CalFire 2008), the primary area of concern regarding wildfires. The Project would not add any structures susceptible to fire to the area, making loss, injury or death involving wildland fires highly unlikely. **No impact** would occur.

# Hydrology and Water Quality

| Would the Project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality? | ☐ | ☐ | ☒ | ☐ |
| b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin? | ☐ | ☐ | ☐ | ☒ |
| c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: | | | | |
| i) result in a substantial erosion or siltation on- or off-site; | ☐ | ☐ | ☒ | ☐ |
| ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; | ☐ | ☐ | ☒ | ☐ |
| iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or | ☐ | ☐ | ☒ | ☐ |
| iv) impede or redirect flood flows? | ☐ | ☐ | ☒ | ☐ |
| d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation? | ☐ | ☐ | ☒ | ☐ |
| e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan? | ☐ | ☐ | ☐ | ☒ |

# Regulatory Setting

## Federal Clean Water Act

The CWA (33 USC Section 1251 et seq. [1976 & Supp II 1978]) provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters. CWA sections applicable to the Project are Sections 303, 305, 401, and 404.

### *Sections 303(d) and 305—Impaired Waters and Total Maximum Daily Loads*

The State of California adopts water quality standards to protect beneficial uses of waters of the State as required by Section 303(d) of the CWA and the Porter-Cologne Act. Section 303(d) of the CWA established the total maximum daily load (TMDL) process to guide the application of

State water quality standards. To identify candidate water bodies for TMDL analysis, a list of water quality–impaired segments, referred to as a 303(d) list, is generated by the SWRCB. These stream or river segments are impaired by the presence of pollutants (e.g., sediment, other specific constituents) and are more sensitive to disturbance because of this impairment. CWA Section 305(b) requires States to develop a report assessing Statewide surface water quality. Both CWA requirements are being addressed through the development of a 303(d)/305(b) Integrated Report, which addresses both an update to the 303(d) list and a 305(b) assessment of Statewide water quality. The SWRCB must develop a long-term plan for completing TMDLs within 8 to 13 years from first listing.

***Section 401—Water Quality Certification***

Section 401 of the CWA requires that an applicant pursuing a federal permit to conduct an activity that may result in a discharge of a pollutant obtain a Water Quality Certification (or waiver). A Water Quality Certification requires the evaluation of water quality considerations associated with dredging or placement of fill materials into waters of the United States. Water Quality Certifications are issued by one of the nine geographically separated Regional Water Quality Control Boards in California. The project falls within the jurisdiction of the San Francisco Bay RWQCB.

Valley Water would be required to obtain a Water Quality Certification for Project construction activities that involve disturbance or placement of dredged or fill material within waters of the United States.

***Section 402—NPDES Permit Program***

CWA Section 402 establishes the National Pollutant Discharge Elimination System (NPDES), a permitting system for the discharge of any pollutant (except for dredged or fill material) into waters of the United States. Section 402(p) requires permits for discharges of stormwater from industrial/construction and municipal separate storm sewer systems (MS4s). The RWQCB is delegated with the responsibility of protecting the quality of surface and ground waters of the State in the Project vicinity.

The NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order 2009-0009-DWQ as amended by order 2012-0006-DWG) (Construction General Permit) regulates stormwater discharges for construction activities under CWA Section 402. Dischargers whose projects disturb 1 or more acres of soil, or whose projects disturb less than 1 acre but are part of a larger common plan of development that in total disturbs 1 or more acres, are required to obtain coverage under the Construction General Permit. The Construction General Permit requires the development and implementation of a SWPPP by a Qualified SWPPP Developer and Qualified SWPPP Practitioner, respectively.

Because the Project would disturb 1 or more acres of soil, Valley Water would be required to obtain coverage under the Construction General Permit. The permit covers construction activities including clearing, grading, grubbing, and disturbances to the ground (e.g., stockpiling or excavation).

***Section 404—Dredge/Fill Permitting***

The discharge of dredged or fill material into waters of the United States is subject to permitting specified under Title IV (Permits and Licenses) of the CWA and specifically under Section 404 (Discharges of Dredge or Fill Material) of the CWA. Section 404 of the CWA regulates placement of fill materials into the waters of the United States. Section 404 permits are administered by USACE. Valley Water would be required to obtain a Section 404 permit for Project construction activities that will permanently or temporarily fill water of the United States.

### California Porter-Cologne Water Quality Control Act

The Porter-Cologne Act authorizes the State to implement the provisions of the CWA and establishes a regulatory program to protect the water quality and beneficial uses of waters of the State. The Act requires projects that are discharging, or proposing to discharge, wastes that could affect the quality of the State's waters to file a report of waste discharge with the appropriate Regional Board. The Porter-Cologne Act also requires that SWRCB or RWQCBs adopt Basin Plans for the protection of water quality. Each Basin Plan is updated and reviewed every 3 years and provides the technical basis for determining waste discharge requirements, taking enforcement actions, and evaluating clean water grant proposals.

As noted above, the Project is under the jurisdiction of the San Francisco Bay RWQCB. The RWQCB is responsible for the protection of beneficial uses of water resources in the San Francisco Bay Region. The Basin Plan for the San Francisco Bay Region was last updated in 2018 (RWQCB 2018). The beneficial uses for Calabazas Creek include: agricultural supply, groundwater recharge, cold freshwater habitat, warm freshwater habitat, wildlife habitat, water contact recreation, and non-contact water recreation.

In 2019, the SWRCB adopted the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State. The Procedures were intended to update and clarify the extent of waters of the State and establish/update regulatory review requirements. The Procedures consist of four major elements: 1) a wetland definition; 2) a framework for determining if a feature that meets the wetland definition is a water of the State; 3) wetland delineation procedures; and 4) procedures for the submittal, review and approval of applications for Water Quality Certifications and Waste Discharge Requirements for dredge or fill activities. The Procedures became effective on May 28, 2020. Consistent with these Procedures, Valley Water would be required to obtain a Water Quality Certification and/or Waste Discharge Requirements for Project construction activities that involve disturbance or placement of dredged or fill material within waters of the State.

## Existing Conditions

### Surface Water

Calabazas Creek extends approximately 13.3 miles from the confluence with the Guadalupe Slough on the San Francisco Bay upstream to the Saratoga foothills. The total drainage area of Calabazas Creek Watershed is 22.7 square miles, over 90% of which is urbanized. Calabazas Creek is on the CWA Section 303(d) list for diazinon, an insecticide that has been widely used in California resulting in contamination of surface waters. In the reach between Bollinger Road and Miller Avenue (Project area), there is approximately 4 square miles of drainage, which is primarily urban with limited areas in the low-density residential foothills. Regnart Creek, an urban drainage channel, confluences with Calabazas Creek approximately 900 feet upstream of Miller Avenue, adding approximately 2 square miles of urbanized watershed. Regnart Creek is approximately 8 feet higher in elevation than Calabazas Creek, and this change in elevation has resulted in a scour hole in the Calabazas Creek bed. Channel degradation and incision has occurred in Project area, which is a classic example of an urbanized stream with a starved sediment supply (J. Xu, pers. comm. 2019).

Stream gauges and field observations on Calabazas Creek indicate that the creek is dry most of the year, except following rain events. On average, the summer months between late April and November have no appreciable flows, with only a small amount of discharge from storm drain systems. In the winter months, substantial flows occur which frequently reach over 100 cfs at 6

feet or greater above grade. However, these flows recede quickly, usually within 24-hours (J. Xu, pers. comm. 2019; Valley Water 2019).

Water flow in Calabazas Creek is typically concentrated in a single-thread, relatively low-gradient channel below the ordinary high-water mark elevation. The channel is largely unvegetated with a bed of cobble, gravel, and coarse sand. The surrounding mature riparian tree canopy shades much of the channel and the channel bed is largely unvegetated.

There are areas of existing bank protection (i.e., riprap, grouted riprap, and sacked concrete) along the channel in the Project area, and the channel is concrete-lined at the Bollinger Road and Miller Avenue bridges, each extending approximately 65 feet into the Project area. Regnart Creek flows into Calabazas Creek over a concrete apron and has concrete banks upstream of the apron.

### Groundwater

California Department of Water Resources Bulletin 118 places the Project in the northwestern corner of Santa Clara Subbasin of the Santa Clara Valley Groundwater Basin. The groundwater subbasin has a total surface area of 153,600 acres, or 240 square miles. The Santa Clara subbasin is bound on the east by the Diablo Mountain Range, the west by the Santa Cruz Mountains, on the north by the San Francisquito Creek, and on the south by the groundwater divide near Morgan Hill (DWR 2016).

Calabazas Creek is located within Valley Water's West Side Recharge System, which contains several its managed groundwater recharge facilities. Valley Water's managed recharge program uses runoff captured in local reservoirs and imported water to recharge groundwater via recharge ponds. The West Side Recharge System has a recharge capacity of about 15,000 acre-feet per year and recharges the Santa Clara Plain. Calabazas Creek has a recharge capacity of 2,600 acre-feet per year (Valley Water 2016).

### Flooding

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map, the Project area is located in a Special Flood Hazard Area subject to inundation by the 1% annual chance flood (FEMA 2009). Specifically, the Project area is in Floodway Area Zone AE, which is a regulatory floodway. Regulatory floodways are channels and adjacent areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height. Outside the Project area, there residential areas and Creekside Park are not considered Special Flood Hazard Areas, as they exhibit a less than 0.2% annual chance of flood.

## Discussion

**a) Would the Project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?**

Activities required to complete the Project include dewatering, clearing and grubbing of eroding bank surfaces, excavation of banks to install riprap, placement riprap to protect banks, and installation of sheet pile metal walls to protect banks. The Project would result in approximately 0.02 acre of fill in Calabazas Creek from placement of half-ton riprap along the channel toe. These activities have the potential to temporarily expose soils to erosion and to mobilize sediments in stormwater. Additionally, hazardous materials such as fuels, oils, grease, and lubricants from construction equipment could be accidentally released during construction. Accidental discharge of these materials could adversely affect water quality and/or result in violation of water quality standards.

Removal of trees and understory vegetation to complete the work could also contribute to the potential for discharge of sediment laden runoff. However, any exposed slopes or substrates would be hydroseeded or revegetated to ensure the surfaces remain stable and downstream water quality impacts do not occur.

While work is anticipated to occur when the creek is dry, there is a possibility that in-channel pools or minor flows would be encountered. To ensure flows do not enter the work area, cofferdams would be constructed upstream of the work area and water would be pumped through a diversion pipe to a discharge location downstream of the work area. Any dewatering discharges would occur onto areas with energy dissipation to prevent erosion or increases to downstream turbidity. The cofferdams would be constructed of gravel bags lined with a Visqueen plastic sheeting. The area of dewatering and location of cofferdams would be limited to the minimum amount necessary to complete the work, depending on the sites under construction and the construction year. Construction vehicles and equipment would only enter the Project area after it is completely dry, thereby avoiding potential impacts from sedimentation or increases to downstream turbidity.

Erosion and sediment control BMPs WQ-1 through WQ-9 as described in **Table 2-4** (*Best Management Practices*) would be implemented to protect water quality. These include BMPs associated with sediment handling, erosion prevention, control of discharges and site management and clean up. In addition, Valley Water would implement BMPs HM-5, HM-6, and HM-7, which would prevent or minimize the potential for discharge of hazardous materials that would affect water quality.

The NPDES Construction General Permit (Order 2009-009-DWQ) requires construction sites over 1 acre that do not qualify for a waiver to prepare and implement a SWPPP. As the construction would exceed 1 acre of ground disturbance, Valley Water would submit Permit Registration Documents (PRDs) to obtain coverage under the NPDES General Permit prior to commencement of construction activities. PRDs are submitted in the Storm Water Multi-Application Report Tracking System and include the notice of intent (NOI), risk assessment, post-construction calculations, a site map, and the SWPPP. The SWPPP would incorporate BMPs to control sedimentation and runoff. A spill prevention and countermeasure plan would be incorporated into the SWPPP. Through implementation of the above-described BMPs and compliance with the applicable construction and stormwater permit requirements, the Project would not violate water quality standards or waste discharge requirements, or otherwise substantially degrade surface or groundwater quality during construction.

Following construction, maintenance of the Project area would remain consistent with existing practice, though maintenance is expected to occur in less frequent intervals than present. The rehabilitated creek banks would protect the Project area and downstream reaches from increased sedimentation associated with bank erosion or failure, which would result in beneficial impacts on water quality.

Therefore, impacts on water quality would be **less than significant**.

**b) Would the Project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin?**

Calabazas Creek is located within Valley Water's West Side Recharge System, which contains a number of its Managed Groundwater Recharge Facilities. Calabazas Creek, which is used for groundwater recharge, has a recharge capacity of 2,600 acre-feet per year. The

Project involves rehabilitation of eroding creek banks through installation of riprap and sheet pile walls. Dewatering would occur in a reach of Calabazas Creek that is typically dry during the period when construction would occur. Once completed, the Project would maintain the creek's existing groundwater recharge capacity. No groundwater supplies would be used or impacted by the Project. Therefore, the Project would have **no impact** on groundwater supplies and would not impede sustainable groundwater management of the basin.

**c) Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:**

**i) Result in a substantial erosion or siltation on- or off- site;**

During construction, the Project could result in temporary soil erosion on exposed or graded surfaces; however, the Project is intended to stabilize eroding creek banks through installation of riprap and sheet pile walls, which would substantially reduce the potential for erosion or siltation in the Project area after work is completed. Graded bank slopes above the riprap or sheet pile walls, such as at Sites 6, 7, 9 and 10, would be compacted and hydroseeded to reduce the potential for erosion and downstream siltation. The bank rehabilitation sites have been designed in a manner than maintains the existing course and contours of the stream to the maximum extent practicable, and in-channel siltation is not anticipated to occur. Furthermore, BMPs would be employed (i.e., BMPs WQ-2 [*Limit Impacts from Staging and Stockpiling Materials*], WQ-3 [*Use Seeding for Erosion Control, Weed Suppression, and Site Improvement*], and WQ-8 [*Prevent Stormwater Pollution*]) to minimize construction-related erosion. As described above, the Project would obtain coverage for discharge of stormwater from the construction area under the Construction General Permit (Order 2009-0009-DWQ) issued by SWRCB. The Construction General Permit requires preparation of a SWPPP by a qualified professional and implementation of the SWPPP throughout the construction period, which would ensure proper site drainage and prevent the erosion of soils and loss of topsoil. Therefore, impacts from erosion or siltation would be **less than significant**.

**ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;**

The Project would not substantially change the rate or amount of surface runoff. The Project would only negligibly increase the area of impervious surfaces in the Project area through installation of approximately 100 square feet of grouted riprap at Site 1, therefore there would not be a substantial increase in runoff into the creek or downstream reaches. The bank rehabilitation work would generally maintain existing surface runoff patterns (i.e., at sites where sheet pile walls are used) or restore surface runoff patterns to more natural conditions (i.e., where riprap is installed to reconstruct an erosional feature). At some locations, the creek banks above the bank repair would be set back (making the slope less steep) and hydroseeded or revegetated, thereby increasing the potential for infiltration and reducing the amount of surface water runoff. Overall, the Project would not result in a substantial change in the amount of runoff and on- or offsite flooding would not occur. Therefore, the impact would be **less than significant**.

**iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or**

Runoff from the Project site would flow directly into Calabazas Creek, eventually discharging to the San Francisco Bay. Runoff would not enter a stormwater drainage system and the flood carrying capacity of Calabazas Creek would not be reduced. As described above, the Project would not provide substantial additional sources of polluted runoff, as the Project would stabilize eroding creek banks, hydroseed/revegetated any exposed soils, and implement BMPs to ensure there would not be substantial impacts on water quality, including from hazardous materials. Therefore, the impact on stormwater drainage systems and from polluted runoff would be **less than significant**.

**iv) Impede or redirect flood flows?**

The purpose of the Project is to, in part, ensure that Calabazas Creek continues to function as a flood control facility. While the creek is anticipated to be dry during construction, an appropriately sized dewatering system would be installed, thereby ensuring flood flows are not impeded. The flood control capacity of Calabazas Creek would be unchanged once the Project is complete. The Project would protect eroding creek banks or restore them to more natural conditions, which would not alter or redirect flood flows. Therefore, the impact would be **less than significant**.

**d) Would the Project, in flood hazard, tsunami, or seiche zones, risk release of pollutants due to Project inundation?**

The Project area is in a special flood hazard zone according to FEMA. While the Project area is anticipated to be dry during construction, an appropriately sized dewatering system would be installed, thereby avoiding the risk of release of pollutants from Project inundation. Furthermore, BMPs would be employed to ensure the risk of pollutant release is minimized to the maximum extent practicable during construction. Applicable BMPs include HM-4 (Ensure Proper Hazardous Materials Management), HM-5 (Utilize Spill Prevention Measures), and WQ-9 (Prevent Water Pollution). A SWPPP would also be developed and the Project would comply with all measures in the Project's permits, including measures intended to prevent release of pollutants.

Following the completion of construction, the rehabilitated creek banks would not create a risk of pollutant release as these features do not contain pollutants in substantial amounts. Sediments would be less likely to enter waterways through erosion as the Project would repair erosional features. Therefore, the impact would be **less than significant**.

**e) Would the Project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?**

The Project would not conflict with the Basin Plan for the San Francisco Bay Region (RWQCB 2018), as the Project would not impact the beneficial uses identified for Calabazas Creek including agricultural supply, groundwater recharge, cold freshwater habitat, warm freshwater habitat, wildlife habitat, water contact recreation, and non-contact water recreation. The Project would not impact groundwater and therefore would not conflict with the groundwater management in the Santa Clara Subbasin (Basin 2-009.02), which is managed by Valley Water as a Groundwater Sustainability Agency under the Sustainable Groundwater Management Act. **No impact** would occur.

# Land Use and Planning

| Would the Project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Physically divide an established community? | ☐ | ☐ | ☐ | ☒ |
| b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect? | ☐ | ☐ | ☐ | ☒ |

# Regulatory Setting

## State

All cities and counties are required by the State to adopt a general plan establishing goals and policies for long-term development, protection from environmental hazards, and conservation of identified natural resources (California Government Code Section 65300).

Government Code Section 65302 lists seven elements or chapters that cities and counties must include in their general plans: land use, circulation, housing, conservation, open space, noise, and safety. The land use element typically has the broadest scope of the mandatory general plan elements. This central element describes the desired distribution, location, and extent of the jurisdiction's land uses. The City of Cupertino General Plan is discussed below.

## Local

General plans lay out the pattern of future residential, commercial, industrial, agricultural, open space, and recreational land uses within a community. To facilitate implementation of planned growth patterns, general plans typically also include goals and/or policies addressing the coordination of land use patterns with the development and maintenance of infrastructure facilities and utilities. Local jurisdictions implement their general plans by adopting zoning, grading, and other ordinances. Zoning identifies the specific types of land uses that are allowed on a given site and establishes the standards that would be imposed on new development.

Updated in 2015, the City of Cupertino General Plan provides a vision of the City that "aspires to be a balanced community with quiet and attractive residential neighborhoods; exemplary parks and schools; accessible open space areas, hillsides and creeks; and a vibrant, mixed-use "Heart of the City"" (City of Cupertino 2015a). The General Plan is the foundation for planning in Cupertino, and all physical development must be consistent with it.

# Existing Conditions

The Project area is located in the Calabazas Creek corridor between Miller Avenue and Bollinger Road in the City of Cupertino. The Project area is bordered to the north by Miller Avenue, to the south by Bollinger Road, to the west by single family residential, and to the east by single family residential and Creekside Park. The City of Cupertino General Plan designates the surrounding land uses as low density residential (1 – 5 dwelling units [DU]/acre), low-medium density residential (5-10 DU/acre), medium density residential (10 – 20 DU/acre), and parks and open space (Creekside Park). The City's Zoning Code assigns the area the designations of single family residential, open space/park, residential duplex, and multiple family residential (City of

Cupertino 2019b). The Calabazas Creek corridor is not called out separately in the City General Plan or zoning designations. The bank rehabilitation work would occur on property owned by Valley Water, though limited construction access/staging easements may be required from the City of Cupertino for access to the downstream access ramp through Creekside Park and staging in a small portion of the park near the access ramp.

# Discussion

**a) Would the Project physically divide an established community?**

The physical division of an established community typically refers to the construction of a physical feature (such as an interstate highway or railroad tracks) or removal of a means of access (such as a local road or bridge) that would impair mobility within an existing community or between a community and an outlying area. The Project would rehabilitate the banks of Calabazas Creek in an established creek and riparian corridor. The Project does not involve construction of any new facilities or structures which could obstruct existing roads, streets, or paths. One pedestrian path crosses the Project area between Sites 2 and 3, but this path would not be affected by construction activities. Therefore, the Project would not divide an established community. **No impact** would occur.

**b) Would the Project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?**

The Project would not result in a change from the existing land use in the Project area, and the Project would result in **no impact**.

# Mineral Resources

| Would the Project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State? | ☐ | ☐ | ☐ | ☒ |
| b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan? | ☐ | ☐ | ☐ | ☒ |

## Regulatory Setting

The Surface Mining and Reclamation Act of 1975 (PRC Sections 2710-2796) provides a comprehensive surface mining and reclamation policy with the regulation of surface mining operations to ensure that adverse environmental impacts are minimized, and mined lands are reclaimed to a usable condition. The Act also encourages the production, conservation, and protection of the State's mineral resources.

The California Geological Survey has classified lands within the San Francisco-Monterey Bay region into Mineral Resource Zones (MRZs). The MRZ classifications are defined as follows.

- MRZ-1: Areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.
- MRZ-2: Areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood for their presence exists.
- MRZ-3: Areas containing mineral deposits, the significance of which cannot be evaluated from available data.
- MRZ-4: Areas where available information is inadequate for assignment into any other MRZ.

The Conservation Element of the City of Cupertino's General Plan does not identify any known mineral resources in the Project area (City of Cupertino 2015a). An area designated as MRZ-3 is located approximately 0.75-mile northwest of the Project area, but this area is categorized as urban/suburban development unsuitable for mineral extraction. Therefore, policies related to mineral resources in the General Plan are not applicable to the Project.

## Existing Conditions

Minerals are any naturally occurring chemical element or compound, or groups of elements and compounds, formed from inorganic processes and organic substances including, but not limited to, coal, peat and oil-bearing rock, but excluding geothermal resources, natural gas and petroleum. Rock, sand, gravel and earth are also considered minerals by the Department of Conservation when extracted by surface mining operations. The USGS Mineral Resources Data System does not identify any mineral resources in the Project area. According to the results of this database search, the nearest area of mineral significance is located 2.5 miles west of the Project area at the Stevens Creek Quarry. Based on the MRZ mapping, it is unlikely that the Project area would contain valuable or otherwise important mineral resources.

# Discussion

**a) Would the Project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?**

The Project would involve rehabilitation of eroding creek banks with the use of riprap and sheet pile walls. Since the Project area does not contain any mineral resources, the proposed activities would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State. Therefore, the Project would have **no impact** on mineral resources.

**b) Would the Project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?**

The Project does not occur in areas delineated as locally important mineral resource recovery sites in a local general plan, specific plan, or other land use plan within the Project area. Therefore, the Project would have **no impact**.

# Noise

| Would the Project result in: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? | ☐ | ☒ | ☐ | ☐ |
| b) Generation of excessive ground borne vibration or ground borne noise levels? | ☐ | ☐ | ☒ | ☐ |
| c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels? | ☐ | ☐ | ☐ | ☒ |

# Regulatory Setting

## California Noise Control Act

The California Noise Control Act was enacted in 1973. In preparing its General Plan noise element, a city or county must identify local noise sources and analyze and quantify to the extent practicable current and projected noise levels from various sources, including highways and freeways; passenger and freight railroad operations; ground rapid transit systems; commercial, general, and military aviation and airport operations; and other stationary ground noise sources.

The State of California General Plan Guidelines provides noise compatibility guidelines for land use planning according to the existing community noise level; however, these guidelines offer no information regarding construction noise. The State has also published its Model Community Noise Ordinance, which provides guidance to cities and counties on how to develop a community noise ordinance. These guidelines include recommended limits on construction noise levels. However, these are only guidelines and are not enforceable.

## City of Cupertino General Plan

The City of Cupertino General Plan's Health and Safety Element contains an overview of the most significant sources of noise within the city, the most prominent of which is traffic noise. Non-transportation noise sources mentioned included stationary equipment and construction activity, both of which are addressed in the City's Municipal Code (described below). The General Plan also includes guidance on how to plan land use within the city in a way that minimizes harmful and bothersome exposure to noise. Relevant General Plan policies on noise are listed in **Table 4-9**.

**Table 4-9.** City of Cupertino General Plan Policies Related to Noise

| Policy | Policy Description |
|---|---|
| HS-8.2: Building and Site Design | Minimize noise impacts through appropriate building and site design… Require analysis and implementation of techniques to control the effects of noise from industrial equipment and processes for projects near low-intensity residential uses. |
| HS-8.3: Construction and Maintenance Activities | Regulate construction and maintenance activities. Establish and enforce reasonable allowable periods of the day, during weekdays, weekends and holidays for construction activities. Require construction contractors to use the best available technology to minimize excessive noise and vibration from construction equipment such as pile drivers, jack hammers, and vibratory rollers. |

Source: City of Cupertino 2015a

### City of Cupertino Municipal Code Noise Ordinance

The Cupertino Municipal Code, Title 10, outlines the maximum noise levels on receiving properties based upon land use types. This section of the Cupertino Municipal Code also sets guidelines for appropriate construction noise levels and limits construction hours to weekdays during daytime hours (City of Cupertino 2002).

The city's rules on noise from grading, construction, and demolition are as follows:

> "Grading, construction and demolition activities shall be allowed to exceed the noise limits of Section 10.48.040 during daytime hours; provided, that the equipment utilized has high-quality noise muffler and abatement devices installed and in good condition, and the activity meets one of the following two criteria:
>
> 1. No individual device produces a noise level more than eighty-seven decibels on the A-weighted scale (dBA) at a distance of twenty-five feet (7.5 meters); or
> 2. The noise level on any nearby property does not exceed eighty dBA." (City of Cupertino 2002)

## Existing Conditions

Noise is usually defined as unwanted sound. Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, or sleep.

To the human ear, sound has two significant characteristics: pitch and loudness. Pitch is generally an annoyance, while loudness can affect our ability to hear. Pitch is the number of complete vibrations, or cycles per second, of a wave resulting in the tone's range from high to low. Loudness is the strength of a sound that describes a noisy or quiet environment and is measured by the amplitude of the sound wave. Loudness is determined by the intensity of the sound waves, combined with the reception characteristics of the human ear. Sound intensity refers to how hard the sound wave strikes an object, which in turn produces the sound's effect. This characteristic of sound can be measured precisely with instruments. The analysis of a project defines the noise environment of the Project area in terms of sound intensity and the Project's effect on adjacent sensitive land uses.

### Measurement of Sound

Sound intensity is measured through the A-weighted scale to correct for the relative frequency response of the human ear. That is, an A-weighted noise level de-emphasizes low and very high

frequencies of sound similar to the human ear's de-emphasis of these frequencies. Unlike linear units (e.g., inches or pounds), decibels are measured on a logarithmic scale representing points on a sharply rising curve.

For example, 10 dB are 10 times more intense than 1 dB; 20 dB are 100 times more intense than 1 dB; and 30 dB are 1,000 times more intense than 1 dB. Thirty decibels (30 dB) represent 1,000 times as much acoustic energy as 1 dB. The decibel scale increases as the square of the change, representing the sound pressure energy. A sound as soft as human breathing is about 10 times greater than 0 dB. The decibel system of measuring sound gives a rough connection between the physical intensity of sound and its perceived loudness to the human ear. A 10 dB increase in sound level is perceived by the human ear as only a doubling of the loudness of the sound. Ambient sounds generally range from 30 dBA (very quiet) to 100 dBA (very loud).

Sound levels are generated from a source, and their decibel level decreases as the distance from that source increases. Sound dissipates exponentially with distance from the noise source. For a single point source, sound levels decrease approximately 6 dBA for each doubling of distance from the source. This drop-off rate is appropriate for noise generated by stationary equipment. If noise is produced by a line source (e.g., highway traffic or railroad operations), the sound decreases 3 dBA for each doubling of distance in a hard-site environment. Line source (noise in a relatively flat environment with absorptive vegetation) decreases 4.5 dBA for each doubling of distance.

There are many ways to rate noise for various time periods, but an appropriate rating of ambient noise affecting humans also accounts for the annoying effects of sound. Equivalent continuous sound level ($L_{eq}$) is the total sound energy of time varying noise over a sample period. However, the predominant rating scales for communities in the State of California are the $L_{eq}$ and Community Noise Equivalent Level (CNEL) or the day-night average level (DNL) based on dBA. CNEL is the time varying noise over a 24-hour period, with a 5 dBA weighting factor applied to the hourly $L_{eq}$ for noises occurring from 7 p.m. to 10 p.m. (defined as relaxation hours) and a 10 dBA weighting factor applied to noise occurring from 10 p.m. to 7 a.m. (defined as sleeping hours). DNL is similar to the CNEL scale, but without the adjustment for events occurring during the evening hours. CNEL and DNL are within 1 dBA of each other and are normally exchangeable.

It should also be noted that DNL is the standard federal metric for determining cumulative exposure of individuals to noise. DNL is the 24-hour average sound level in decibels. The average is derived from noise measurements taken during a 24-hour period. DNL adds a 10-dB noise penalty to each aircraft operation occurring during nighttime hours (10 p.m. to 7 a.m.). DNL includes that penalty to compensate for people's heightened sensitivity to noise during this period.

Other noise rating scales of importance when assessing the annoyance factor include the maximum noise level ($L_{max}$), which is the highest exponential time averaged sound level that occurs during a stated time period. The noise environments discussed in this analysis for short-term noise impacts are specified in terms of maximum levels denoted by $L_{max}$, which reflects peak operating conditions and addresses the annoying aspects of intermittent noise. It is often used together with another noise scale, or noise standards in terms of percentile noise levels, in noise ordinances for enforcement purposes. For example, the $L_{10}$ noise level represents the noise level exceeded 10 percent of the time during a stated period. The $L_{50}$ noise level represents the median noise level. Half of the time the noise level exceeds this level, and half of the time it is less than this level. The $L_{90}$ noise level represents the noise level exceeded 90 percent of the time and is considered the background noise level during a monitoring period. For a relatively constant noise source, the $L_{eq}$ and $L_{50}$ are approximately the same.

Noise impacts can be described in three categories. The first category includes audible impacts that refer to increases in noise levels noticeable to humans. Audible increases in noise levels generally refer to a change of 3.0 dB or greater since this level has been found to be barely perceptible in exterior environments. The second category, potentially audible, refers to a change in the noise level between 1.0 and 3.0 dB. This range of noise levels has been found to be noticeable only in laboratory environments. The last category includes changes in noise level of less than 1.0 dB, which are inaudible to the human ear. Only audible changes in existing ambient or background noise levels are considered potentially significant.

### Surrounding Land Uses

The Project area is located in the Calabazas Creek corridor between Miller Avenue and Bollinger Road. The Project sites are bordered to the north by Miller Avenue, to the south by Bollinger Road, to the west by single family residential, and to the east by single family residential and Creekside Park. The City of Cupertino General Plan designates the surrounding land uses as low density residential, low-medium density residential, medium density residential, and parks and open space (Creekside Park). The Project area is not located within an airport noise impact zone.

### Existing Noise Levels

The existing ambient noise environment in the Project area is characteristic of a suburban residential environment. Principal noise sources in the project vicinity include local and regional street traffic and lawn care equipment (e.g., lawn mowers, chain saws, leaf blowers, and “weed whackers”), along with occasional dog barks, fire and police sirens, and aircraft. Residences adjacent to parks also experience noise generated by athletic events. Short-term noise monitoring data from 2014 in the City of Cupertino’s General Plan in residential neighborhoods similar to the neighborhood surrounding the Project area revealed ambient noise levels between 58 and 70 dBA $L_{eq}$ (City of Cupertino 2015a).

### Sensitive Receptors

Noise-sensitive land uses generally include those uses where exposure to noise would result in adverse effects. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. A majority of the Project area occurs adjacent to residential areas, primarily in the form of single-family residential homes with backyards abutting the Project area. Creekside Park supports both active and passive recreation and is not considered a noise-sensitive receptor.

## Discussion

The Project would not result in an increase in operational noise impacts over baseline conditions, as maintenance of the Project area would be similar or less frequent than existing conditions. Maintenance of the bank rehabilitation sites, should any be required, would be minor and infrequent. Therefore, this section only discusses construction-related noise.

**a) Would the Project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?**

Construction of the Project would require the use of heavy equipment that would temporarily increase noise levels at properties adjacent to the work sites. **Table 4-10** presents typical noise levels for various types of construction equipment that would be utilized. The noise

levels listed represent the A-weighted $L_{max}$, measured at a distance of 25 feet from the construction equipment. A majority of the construction equipment listed in **Table 4-10** is below the City's Noise Ordinance threshold of 87 dBA at 25 feet. Most construction equipment that exceeds these thresholds (e.g., chainsaws, concrete saws, and jackhammers) would be used less frequently and only at certain work sites. Bulldozers and graders, which also exceed the equipment noise thresholds, would only operate in the channel bottom and thus noise from this equipment would be further from adjacent properties and be naturally screened by the channel banks. While the nearest property lines are close to the work areas in many locations, ranging from 1 foot to 25 feet away (or averaging 12 feet across all sites), work in each specific area would generally be short in duration and most work would occur further from the property line, allowing for greater sound attenuation. Furthermore, due to the creek incision, work would generally be conducted below the top of bank (up to 20 feet below the top of bank, depending on location), which would provide a natural sound screen on both sides of the work area.

**Table 4-10.** Typical Maximum Noise Emission Levels by Construction Equipment

| Equipment | Typical Maximum Noise Level (dBA) 25 feet from Source[1] | Work Site Where Equipment Utilized |
|---|---|---|
| Backhoe | 84 | All |
| Bulldozer | **88** | All[2] |
| Chainsaw | **90** | 6 – 10[3] |
| Compressor (air) | 84 | All |
| Concrete mixer truck | 85 | 1 and 2 |
| Concrete pump truck | 87 | 1 and 2 |
| Concrete saw | **96** | 1 and 2 |
| Crane | 87 | 5, 8, 9, and 10 |
| Dump truck | 82 | All |
| Excavator | 87 | All |
| Flatbed truck | 80 | All |
| Generator | 79 | All |
| Grader | **91** | All[2] |
| Jackhammer | **95** | 1 and 2 |
| Loader | 85 | All |
| Pumps | 87 | All |
| Roller | 86 | All |
| Sheet piling machine[4] | 69 | 5, 8, 9, and 10 |
| Welder | 80 | 5, 8, 9, and 10 |

Source: Federal Highway Administration 2006
Notes:
[1] Values in bold exceed City of Cupertino Noise Ordinance thresholds.
[2] Bulldozers and graders would be used exclusively in the channel bottom, which would occur a minimum of 25 feet from the nearest properties (typically further) and would have the benefit of natural sound screening from the creek banks.
[3] Chainsaws would be used for very short durations during tree removals.

| Equipment | Typical Maximum Noise Level (dBA) 25 feet from Source[1] | Work Site Where Equipment Utilized |
|---|---|---|

[4] The Giken silent sheet piling machine would be used to avoid impacts from pile driving (far greater noise impacts). The machine hydraulically presses sheet piles into the substrate.

Despite these factors, it is possible that construction activities would exceed the noise thresholds in the City of Cupertino's noise ordinance, which prohibits any single piece of construction equipment from exceeding 87 dBA at 25 feet or noise at any nearby property exceeding 80 dBA. Therefore, the impact of temporary construction noise is potentially significant and **MM-NV-1** through **MM-NV-4** are proposed to address the temporary noise impact.

**MM-NV-1: Provide Advance Notification of Construction Schedule and 24-hour Hotline to Residents**

Valley Water will provide advance written notification of the proposed construction activities to all adjacent residences and posted at Creekside Park at least 30 days prior to the start of construction. Notification shall include a brief overview of the Project and its purpose, as well as the proposed construction activities and schedule. It shall also include the name and contact information of a Valley Water representative responsible for ensuring that reasonable measures are implemented to address the problem (the construction noise disturbance coordinator; see Mitigation Measure NV-3).

**MM-NV-2: Implement Work Site Noise Control Measures**

To reduce noise impacts, Valley Water will require all contractors to adhere to the following measures. Valley Water will be responsible for ensuring implementation.

- All construction equipment will be equipped with manufacturer's standard noise control devices or with equally effective replacement devices consistent with manufacturer specifications.
- Stationary noise-generating equipment will be located as far as possible from sensitive receptors, and, if feasible, will be shielded by placement of other equipment or construction materials storage.
- Impact tools (e.g., jackhammers) will be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. Where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust will be used; this muffler can lower noise levels from the exhaust. External jackets on the tools themselves will be used where feasible. Quieter procedures, such as use of drills rather than impact tools, will be used whenever feasible.

**MM-NV-3: Designate Noise Disturbance Coordinator to Address Resident Concerns**

Valley Water will designate a representative to act as construction noise disturbance coordinator, responsible for resolving construction noise concerns. The disturbance coordinator's name and contact information will be included in the preconstruction notices sent to adjacent residents (see Mitigation Measure NV-1). They will be available during all construction hours to monitor and respond to concerns. In the event a noise complaint is received, she or he will be responsible for determining the cause of the complaint and ensuring that all reasonable measures are implemented to address the problem.

**MM-NV-4: Install Temporary Noise Barriers**

Valley Water or its contractors will be responsible for monitoring noise from construction activities to ensure that noise at the nearest property line does not exceed 80 dBA, consistent with the City of Cupertino Noise Ordinance. If noise monitoring determines that the 80-dBA threshold is exceeded at any adjacent property, Valley Water will install temporary noise barriers, where feasible, to reduce noise levels below the construction noise standard. Work responsible for the disturbance will be suspended or modified until barriers have been installed. Valley Water will include a construction bid item to provide noise barriers on-site and install noise barriers immediately in response to noise concerns. Following are the relevant specifications.

- The barrier will be 10 feet tall. Barriers will surround the work area to block the line of sight for all diesel-powered equipment on the ground, as viewed from any private residence or any building.
- The barrier will be constructed of heavyweight plywood (at least 5/8-inch-thick) or other material providing a Sound Transmission Classification of at least 25 dBA. (As above, note that 5/8 inch is sufficiently thick to provide optimal noise buffering; increasing the thickness of the barrier above 5/8 inch would not provide a noticeable improvement in noise reduction.)
- The barrier will be constructed with no gaps or holes that would allow noise to transmit through the barrier.
- To minimize reflection of noise toward workers at the construction site, the surface of the barrier facing the workers will be covered with sound-absorbing material that meets a Noise Reduction Coefficient of at least 0.70.

**MM-NV-1** through **MM-NV-4** require advanced notification to adjacent residences of upcoming construction, implementation of noise control measures, designation of a noise disturbance coordinator for adjacent residents, and installation of temporary noise barriers to reduce noise levels below the City of Cupertino Noise Ordinance thresholds, should the threshold be exceeded. Therefore, with implementation of these mitigation measures, impacts from noise in the Project vicinity would be reduced to **less than significant** level.

**b) Would the Project result in generation of excessive ground borne vibration or ground borne noise levels?**

Vibration refers to groundborne noise and perceptible motion. Groundborne vibration is almost exclusively a concern inside buildings and is rarely perceived as a problem outdoors, where the motion may be discernable. However, without the effects associated with the shaking of a building, there is less adverse reaction.

The Project would only use heavy equipment capable of generating disturbance from ground borne vibration for short periods of time and/or in discrete locations. In general, the Project would not use heavy equipment that would generate discernable vibrations but would instead use smaller construction equipment including loaders and excavators. Whenever possible, techniques that reduce the amount of ground borne vibration and noise would be used. For example, the Project avoids use of impact or vibratory pile driving to construct sheet pile walls, and instead uses a sheet piling system that hydraulically presses sheet piles into the substrate. While truck travel would occur with the Project, the rubber tires and suspension systems of trucks provide vibration isolation and it is unusual for trucks to cause ground-borne

noise or vibration problems. **Table 4-11** summarizes the typical vibration source levels for construction equipment that could be used on site.

**Table 4-11.** Typical Vibration Source Levels by Construction Equipment

| Equipment | PPV[1] at 25 feet (in/sec) |
|---|---|
| Large Bulldozer | 0.089 |
| Small Bulldozer | 0.003 |
| Caisson drilling | 0.089 |
| Jackhammer | 0.035 |
| Loaded trucks | 0.076 |

Source: Federal Highway Administration 2006
[1] Peak particle velocity

The U.S. Department of Transportation (U.S. DOT) published criteria for the protection of fragile buildings from vibration, which established a threshold of 0.2 inches per second peak particle velocity (PPV). As shown in **Table 4-11**, vibration generation from heavy equipment used in Project construction at 25 feet would be less than 0.1 inches per second PPV, which is substantially less than the U.S. DOT criteria. Furthermore, this heavy equipment would generally be used in the bottom of the channel or mid-bank, and the distances to the nearest occupied buildings would typically be 50 feet or greater. At Sites 1 and 2, a jackhammer may be used for a brief period at approximately 25 to 45 feet from the nearest structures, but this activity is not expected to result in excessive ground borne vibration that significantly impact residents or damage structures.

Therefore, the impact from ground borne vibration or ground borne noise would be **less than significant**.

**c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?**

The Project area is located approximately 5 miles southwest of the Norman Y. Mineta San Jose International Airport. The Project area does not fall within the airport influence area for any public airports. The Project would not include development of any new commercial or residential facilities. **No impact** would occur.

# Population and Housing

| Would the Project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? | ☐ | ☐ | ☐ | ☒ |
| b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere? | ☐ | ☐ | ☐ | ☒ |

## Regulatory Setting

The City of Cupertino's General Plan (City of Cupertino 2015a) guides development and land use in the Project vicinity. The General Plan was used in preparation of this analysis as the basis against which to evaluate potential population and housing impacts.

## Existing Conditions

The Project area is surrounded by areas zoned for residential use, but there is no housing in the Project area itself.

## Discussion

**a) Would the Project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?**

The Project would not include any new housing, commercial or industrial space, result in the conversion of adjacent land uses, or provide access to previously inaccessible areas. The Project would rehabilitate and protect eroding creek banks, and would not directly or indirectly induce population growth. Therefore, the Project would have **no impact**.

**b) Would the Project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?**

The Project would not include the demolition of existing housing or displace existing housing or residents which would necessitate the construction of replacement housing elsewhere. Therefore, the Project would have **no impact**

# Public Services

| **Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or need for new or physical altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:** | **Potentially Significant Impact** | **Less Than Significant with Mitigation Incorporated** | **Less Than Significant Impact** | **No Impact** |
|---|---|---|---|---|
| a) Fire protection? | ☐ | ☐ | ☐ | ☒ |
| b) Police protection? | ☐ | ☐ | ☐ | ☒ |
| c) Schools? | ☐ | ☐ | ☐ | ☒ |
| d) Parks? | ☐ | ☐ | ☒ | ☐ |
| e) Other public facilities? | ☐ | ☐ | ☐ | ☒ |

# Regulatory Setting

## Fire Services

Fire protection services in Cupertino are provided by the Santa Clara County Fire Department (SCCFD). The SCCFD includes 15 fire stations covering 128 square miles and a population of over 226,700. The closest fire station to the project site is the Cupertino Station, which is located at 20215 Stevens Creek Boulevard in Cupertino, approximately 1 mile from the Project area.

## Police Services

Police protection services in Cupertino are provided by the Santa Clara County Sheriff's Office. The nearest sheriff's office to the Project area is the West Valley Division Substation, which has 87 personnel assigned to the division and is located at 1601 S. De Anza Boulevard in Cupertino, approximately 1.25 mile from the Project area.

## Parks

### *California Public Park Preservation Act*

The California Public Park Preservation Act of 1974 provides that a public agency that acquires public parkland for non-park use must either pay compensation that is sufficient to acquire substantially equivalent substitute parkland or provide substitute parkland of comparable characteristics. Accordingly, in the event that parkland and facilities are acquired, the agency is required to acquire substitute parkland and facilities. If less than 10 percent but not more than 1 acre of the parkland is acquired, the agency may instead improve the unacquired portion of the parkland and facilities.

### *Quimby Act*

The Quimby Act authorizes the legislative body of a city or county to require the dedication of land or to impose fees for park or recreational purposes as a condition of the approval of a tentative or parcel subdivision map, if specified requirements are met. The dedication of land, or the payment of fees, or both, shall not exceed the proportionate amount necessary to provide three acres of park area per 1,000 persons residing within a subdivision subject to this section, unless the

amount of existing neighborhood and community park area, as calculated pursuant to this subdivision, exceeds that limit, in which case the legislative body may adopt the calculated amount as a higher standard not to exceed five acres per 1,000 persons residing within a subdivision subject to this section.

# Existing Conditions

## Fire Protection

No facilities for fire protection exist in the Project area. SCCFD provides fire services to the Project area and the nearest fire station is the Cupertino Station, which is located at 20215 Stevens Creek Boulevard in Cupertino, approximately 1 mile from the Project area.

## Police Protection

No facilities for police protection exist in the Project area. The Santa Clara County Sheriff's Office provides police protection to the Project area and the nearest sheriff's office is the West Valley Division Substation, located at 1601 S. De Anza Boulevard in Cupertino, approximately 1.25 mile from the Project area.

## Parks

According to the City of Cupertino General Plan, Cupertino currently has approximately 165 acres of City-owned public parks and open space areas (City of Cupertino 2015a). The Project area occurs adjacent to the west side of Creekside Park, which includes 13 acres of athletic fields, basketball courts, play areas, restrooms, and parking. Project staging would occur in Creekside Park in a 3,400 square foot area (120 feet long and 28 feet wide) in the northwest corner of the park. Creekside Park is accessed via Miller Avenue to the east. Creekside Trail, which runs along Regnart Creek for approximately 300 feet to East Estates Drive, crosses over Calabazas Creek and the Project area into Creekside Park from the west.

## Schools

The Cupertino Union School District, Fremont Union, and Santa Clara Unified School District serve the Project area with a total of 32 elementary, middle, and high schools. Three schools occur approximately 0.2- to 0.3-mile east of the Project area: Cupertino High School, Sedgwick Elementary, and Hyde Middle School.

## Libraries

The Cupertino Library, operated by the Santa Clara County Library under the Joint Powers Authority Agreement, is located approximately 0.6 mile west of the Project area at 10800 Torre Avenue.

# Discussion

**Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or need for new or physical altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:**

**a, b) Fire and police protection?**

Project activities would not contribute to increased demand for fire or police protection services, since the Project would not contribute to population growth or other long-term land use modifications. Therefore, the Project would have **no impact** to fire and police protection services.

**c) Schools**?

No schools are located within the Project area and no schools would be affected by the Project. The Project would not contribute to population growth and the demand for schools would not increase. Therefore, there would be **no impact** on schools.

**d) Parks?**

The Project area is located adjacent to Creekside Park, which comprises 13 acres of athletic fields, basketball courts, play areas, restrooms, and parking. Project staging would occur in a 3,400 square foot area (120 feet long and 28 feet wide) in the northwest corner of the park. The staging area would be located on a grassy area with a trail/access road occurring on the north side of the staging area, and the athletic fields on the south side of the staging area. The staging area would not occur within the field of play (i.e., “out of bounds”) for activities that use the fields. Other than the 3,400 square feet for the staging area, there would be no loss of use of the remaining 6.75 acres of athletic fields in the park. Furthermore, the staging area would only be present from April 15 to October 15 each year.

Access to the downstream access ramp would also occur via a road in Creekside Park in the northwest corner of the park, between athletic fields and the creek. While this access route may be used during any period of construction, it would primarily be used during the first year of construction at Sites 1 through 7. Furthermore, given the construction window, any disruptions would be limited to weekdays when fewer park users are present. Vehicle and equipment access through the park is not expected to prevent use of the park. Valley Water would obtain a temporary construction easement from the City for staging and access, which might include restrictions imposed by the City.

It is possible that during construction, park users would use other nearby parks to avoid construction noise, particularly during work at Sites 2 and 3 which occur adjacent to the Park. However, this impact would be temporary and would not require the construction of additional park facilities. The Project would not result in a need for additional park space, as the park would continue to maintain its utility during all phases of construction and operation. The impact on parks would be **less than significant**.

**e) Other public services?**

Since the activity would not contribute to population growth or other long-term land use modifications, the Project is not anticipated to affect other public facilities. Therefore, **no impact** would occur.

# Recreation

| Would the Project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? | ☐ | ☐ | ☒ | ☐ |
| b) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment? | ☐ | ☐ | ☐ | ☒ |

## Regulatory Setting

See *Regulatory Framework* under *Public Services*, for a description of regulations related to parks and recreational facilities.

## Existing Conditions

As indicated above, Cupertino has approximately 165 acres of City-owned public parks and open space areas. Within the City there are 13 neighborhood parks, 15 community parks, and 11 semi-private residential parks and open space areas. The Project area occurs adjacent to the west side of Creekside Park, which includes 13 acres of athletic fields, basketball courts, play areas, restrooms, and parking. In addition, there are many acres of open space preserves in the vicinity that are operated and maintained by regional agencies and districts.

The City of Cupertino General Plan identifies an opportunity for an extension of the Calabazas Creek Trail that would connect the South Vallco Planning Area to Cupertino High School and Creekside Park (City of Cupertino 2015a). In the project area, this trail extension would potentially run parallel to the east side of the creek between Miller Avenue and the Creekside Park pedestrian bridge. The Creekside Park pedestrian bridge is an approximately 300-foot-long pedestrian pathway that spans Calabazas Creek between Sites 2 and 3, connecting Creekside Park to East Estates Drive, running along the south side of Regnart Creek.

## Discussion

**a) Would the Project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?**

The Project would not induce population growth, and demand for existing neighborhood and regional parks would not increase after completion of the Project. However, there could be a temporary increase in demand for parks or athletic facilities in the Project vicinity if users of Creekside Park elect to use other parks during construction.

Creekside Park, which comprises 13 acres of athletic fields, basketball courts, play areas, restrooms, and parking, is not expected to be impacted such that disruptions from construction render the park unusable. Project staging would occur in a 3,400 square foot area (120 feet long and 28 feet wide) in the northwest corner of the park. The staging area would be located on a grassy area with a trail/access road occurring on the north side of the staging area, and

the athletic fields on the south side of the staging area. The staging area would not occur within the field of play (i.e., “out of bounds”) for activities that use the fields. Other than the 3,400 square feet for the staging area, there would be no loss of use of the remaining 6.75 acres of athletic fields in the park. Furthermore, the staging area would only be present from April 15 to October 15 each year.

Access to the downstream access ramp would also occur through the northwest corner of the park, between athletic fields and the creek. While this access route may be used during any period of construction, it would primarily be used during the first year of construction at Sites 1 through 7. Vehicle and equipment access through the park are not expected to prevent use of the park. Valley Water would obtain a temporary construction easement from the City which might include staging access restrictions. Access and use of the remainder of the park would not be impacted. Furthermore, given the construction window, any disruptions would be limited to weekdays when fewer park users are present. The temporary construction impacts on Creekside Park are not anticipated to increase demand of other neighborhood parks such that substantial physical deterioration of other recreational facilities and parks would occur. Therefore, the impact on existing park and recreational facilities is **less than significant**.

**b) Would the Project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?**

The Project would not induce population growth and demand for recreational facilities would not increase after completion of the Project. The Project does not include construction or expansion of recreational facilities and would have **no impact.**

# Transportation

| Would the Project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities? | ☐ | ☐ | ☒ | ☐ |
| b) Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)? | ☐ | ☐ | ☒ | ☐ |
| c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? | ☐ | ☐ | ☒ | ☐ |
| d) Result in inadequate emergency access? | ☐ | ☐ | ☐ | ☒ |

## Regulatory Setting

### State

On September 27, 2013, Senate Bill (SB) 743 was signed into law. The legislature found that with adoption of the Sustainable Communities and Climate Protection Act of 2008 (SB 375), the State had signaled its commitment to encourage land use and transportation planning decisions and investments that reduce VMT and thereby contribute to the reduction of GHG emissions, as required by the California Global Warming Solutions Act of 2006 (AB 32).

SB 743 started a process that could fundamentally change transportation impact analyses as part of CEQA compliance. These changes will include the elimination of auto delay, level of service (LOS), and similar measures of vehicular capacity or traffic congestion as the basis for determining the significant impacts of land use projects under CEQA. As part of the new CEQA Guidelines, the new criteria “shall promote the reduction of GHG emissions, the development of multimodal transportation networks, and a diversity of land uses.” The Office of Planning and Research developed alternative metrics and thresholds based on VMT. Amendments to the CEQA Guidelines were certified by the Secretary of the Natural Resources Agency in December 2018, and automobile delay, as described solely by LOS or of similar measures of vehicular capacity or traffic congestion, shall not be considered a significant impact on the environment. There is an opt-in period until July 1, 2020, for agencies to adopt new VMT-based criteria.

### Local and Regional Plans

The City of Cupertino General Plan contains goals and policies related to transportation. **Table 4-12** lists the specific transportation policies relevant to the Project.

**Table 4-12.** Cupertino General Plan Transportation Policies Relevant to the Project

| Policy ID | Policy |
|---|---|
| M-1.2 | **Transportation Impact Analysis**. Participate in the development of new multi-modal analysis methods and impact thresholds as required by SB 743. However, until such impact thresholds are developed, continue to optimize mobility for all modes of transportation while striving to maintain the following intersection Levels of Service (LOS) at a.m. and p.m. peak traffic hours:<br>• Major intersections: LOS D<br>• Stevens Creek Boulevard and De<br>• Anza Boulevard: LOS E+<br>• Stevens Creek Boulevard and<br>• Stelling Road: LOS E+<br>• De Anza Boulevard and Bollinger<br>• Road: LOS E+ |
| M-2.4 | **Community Impacts**. Reduce traffic impacts and support alternative modes of transportation rather than constructing barriers to mobility. Do not close streets unless there is a demonstrated safety or over-whelming through traffic problem and there are no acceptable alternatives since street closures move the problem from one street to another. |
| M-3.3 | **Pedestrian and Bicycle Crossings**. Enhance pedestrian and bicycle crossings and pathways at key locations across physical barriers such as creeks, highways and road barriers. |

Sources: Santa Clara County 1994; City of Cupertino 2015a

Chapter 11.32, *Truck Traffic Routes*, of the City of Cupertino's Municipal Code establishes rules related to truck travel through the City. These rules include stipulations about what routes are appropriate for trucks (defined as any vehicle exceeding a gross weight of 3 tons) to take when traveling through Cupertino (City of Cupertino 2020).

# Existing Conditions

Cupertino is accessible from Interstate 280 and State Route 85, as well as Lawrence Expressway and Foothill Expressway. Major arterial roads in Cupertino that are identified as truck routes include Stevens Creek Boulevard, Homestead Road, De Anza Boulevard, and Wolfe Road. The Project area is bound by Miller Avenue to the north and Bollinger Road to the south, which are considered major collector streets. Both streets intersect the creek via vehicle and pedestrian bridges. Miller Avenue can be accessed from I-280 via North Wolfe Road; Bollinger Road can be accessed directly from De Anza Boulevard via SR-85. Access to the northern end of Project area would occur from an access ramp in northeastern corner of Creekside Park, which is entered via Miller Avenue. Access to the southern end of the Project area would occur from an access ramp located on Bollinger Road.

There is no pedestrian or bicycle access to the Project area, but a pedestrian bridge crosses over Calabazas Creek at the confluence with Regnart Creek. The bridge, part of the Creekside Trail, connects Creekside Park to East Estates Drive, approximately 300 feet west of the Project area. Creekside Park supports multiple walking paths adjacent to the Project area. Bicycle lanes are also present on Miller Avenue and Bollinger Road.

The City of Cupertino is serviced by the VTA, which operates a number of bus routes that run through Cupertino and neighboring municipalities. Light rail does not run through Cupertino, but bus routes provide connections to VTA's light rail system as well as other regional public transit networks.

# Discussion

**a) Would the Project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?**

The Project area does not include any publicly accessible roadways, public transit routes, or bicycle or pedestrian facilities. No alterations to existing roadways are proposed by the Project and there would be no impact to vehicle, bicycle, or pedestrian transportation networks or roadway configurations. The Project would be consistent with policies established by Santa Clara County and the City of Cupertino.

Construction activity associated with the Project would generate a short-term increase in vehicle trips from construction workers/vendors and haul trucks transporting materials to and from the Project area on nearby roadways (**Table 4-13**). It is anticipated that an average of 15 construction-related vehicle trips per day (these include worker/vendor vehicles and construction trucks) would occur throughout Project construction, though the average trips per day would increase to up to 19 trips per day during the bank rehabilitation phases (rather than site preparation and restoration). Access to the Project area would occur from Miller Avenue and Bollinger Road, both of which are considered major collector streets in the City of Cupertino General Plan (City of Cupertino 2015a). Miller Avenue would be accessed from I-280 via North Wolfe Road, and Bollinger Road would be accessed directly from De Anza Boulevard. North Wolfe Road and De Anza Boulevards are both major arterial roads identified to support truck traffic by the Cupertino Municipal Code. The Project would be consistent with the rules and regulations regarding truck use in the Cupertino Municipal Code.

**Table 4-13.** Estimated Construction-Related Vehicle Trips

| Construction Year | Average Number of Worker/Vendor Trips per Day | Average Number of Haul Trips per Day | Total Average Trips per Day |
|---|---|---|---|
| Year 1 | 9 | 6 | 15 |
| Year 2 | 9 | 6 | 15 |

Project-generated traffic would be temporary and therefore would not result in any long-term degradation in traffic operating conditions (i.e., permanent increases in congestion) on any roadway segments or intersections in the Project vicinity. The minimal number of vehicle trips would not substantially add to local congestion in the Project vicinity. Therefore, although Project-generated traffic would contribute to localized congestion near the Project area, impacts to the performance of the circulation system and travel demands would be minor, temporary, and short-term in nature.

Construction-related truck traffic during the AM (8:00 to 9:00 AM) and PM (4:00 to 6:00 PM) peak hours would coincide with peak-period traffic volumes on area roadways, and therefore would have the greatest potential to impede traffic flow. Project-related hauling and deliveries would be dispersed throughout the day, which would lessen the effect on peak-hour traffic on the roadway segments and intersections in the Project vicinity with the exception of worker commute trips, which would typically occur during the AM and PM peak hour.

Due to the minimal number of trips per day that the Project is expected to generate, and the temporary nature of the trips that would be generated, impacts would be **less than significant**.

**b) Would the Project conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?**

The Project would not conflict or be inconsistent with Section 15064.3 of the CEQA Guidelines, which allows various approaches to consider a Project's transportation impacts, including qualitative analysis. As described in a) above, the Project would only generate very small number of trips per day during the two constructions seasons (12 total months). The Project would not permanently impact vehicle traffic in the Project vicinity, as the Project would not induce growth, result in land use changes, or permanently alter traffic circulation. Following Project construction, no additional maintenance would be required beyond what is already occurring. Therefore, the Project would not conflict with CEQA Guidelines Section 15064.3; the impact would be **less than significant**.

**c) Would the Project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?**

The Project would not include new design features (e.g., new facilities or obstructions within public roadways) or alterations of existing features (e.g., road realignment). No incompatible uses or hazardous design features are associated with operation or maintenance of the Project. However, construction of the Project would result in heavy vehicles and equipment accessing the Project area via local roadways, including Miller Avenue and Bollinger Road. The presence of large, slow-moving equipment among the general-purpose traffic on roadways in the Project area could result in temporary safety hazards. However, BMP TR-1 (*Incorporate Public Safety Measures*), which requires fencing, barriers, lights, flagging, guards and/or signs (as appropriate) to provide warning to the public of construction activities, would minimize the effects from construction traffic within the Project area, and traffic safety hazards would not be substantially increased. Therefore, the Project would result in a **less than significant** impact from an increase in traffic hazards.

**d) Would the Project result in inadequate emergency access?**

Emergency access to the Project area would be provided via two access points: the concrete ramp located on Bollinger Road and the earthen ramp located in the northwestern corner of Creekside Park. These access ramps would be available for emergency access during construction, in the unlikely event emergency access would be required. Prior to and during construction, Valley Water would coordinate with the City of Cupertino to ensure adequate emergency access is maintained at Creekside Park. The Project would not limit existing emergency access within the Project vicinity, as there would be no road closures or interruptions. **No impact** is anticipated.

# Tribal Cultural Resources

| **Would the Project cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:** | **Potentially Significant Impact** | **Less Than Significant with Mitigation Incorporated** | **Less Than Significant Impact** | **No Impact** |
|---|---|---|---|---|
| a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC Section 5020.1(k), or | ☐ | ☐ | ☐ | ☒ |
| b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in Subdivision (c) of PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe. | ☐ | ☐ | ☒ | ☐ |

## Regulatory Setting

Effective July 1, 2015, AB 52 requires lead agencies to provide notice to any California Native American tribes that have requested notice of projects proposed by the lead agency, and if a tribe requests consultation within 30 days upon receipt of the notice, the lead agency must consult with the tribe. Topics that may be addressed during consultation include tribal cultural resources, the potential significance of project impacts, type of environmental document that should be prepared, and possible mitigation measures and project alternatives.

AB 52 creates a new category of resources called tribal cultural resources. PRC Section 21074(a) defines tribal cultural resources as:

> "Sites, features, places, cultural landscapes (geographically defined in terms of the size and scope), sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
>
> a) Included or determined to be eligible for inclusion in the California Register of Historical Resources; and/or
> b) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1; and/or
> c) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe."

Because criteria a) and b) also meet the definition of a historical resource under CEQA, a tribal cultural resource may also require additional consideration as a historical resource. Tribal cultural resources may or may not exhibit archaeological, cultural, or physical indicators.

PRC Section 21073 defines California Native American tribes as "a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of the Statutes of 2004." This includes federally and non-federally recognized tribes.

Recognizing that California tribes are experts in their tribal cultural resources and heritage, AB 52 requires that CEQA lead agencies carry out consultation with tribes at the commencement of the CEQA process to identify tribal cultural resources. Furthermore, because a significant effect on a tribal cultural resource is considered a significant impact on the environment under CEQA, consultation is required to develop appropriate avoidance, impact minimization, and mitigation measures.

### Tribal Consultation

AB 52 consultation requirements went into effect on July 1, 2015 for all projects that have not already published a NOI to Adopt a ND or MND, or published a Notice of Preparation of an EIR To date, Valley Water has received one written request from the Muwekma Oholone Indian Tribe of the San Francisco Bay Area Region to receive notifications as specified in PRC Sections 21080.3.1. Therefore, Valley Water mailed a Project notification letter to Charlene Nijmeh, Chairwoman of the Muwekma Ohlone Indian Tribe of the San Francisco Bay Area Region, on July 3, 2019, which provided a brief description and location of the Project. A follow-up phone call was also placed with Chairwoman Nijmeh on August 19, 2019, but no message was left due to a full mailbox. No request for consultation was received within the 30-day response period, or during the second effort to contact the Tribe after the response period lapsed. Therefore, no AB 52 consultation is required.

## Existing Conditions

Valley Water conducted a records search and pedestrian survey for potential cultural resources present in the Project area and summarize their findings in a Cultural Resources Survey Memorandum (**Appendix E**; Pacific Legacy 2018). The investigation included a search of archives and records, consultation with the NAHC, and a pedestrian inventory survey. A search of the California Historical Resources Information System was conducted by the NWIC on August 22, 2018. This search indicated that two prior archaeological studies overlapped with approximately 20% of the Project area; however, no previously recorded archaeological sites, buildings, or structures were noted. The NWIC reported a "moderate potential" for Native American and historic period archeological resources.

No prehistoric or historic period cultural resources were identified during the pedestrian survey. This survey area included "all exposed soils in the Calabazas Creek bed and the eroded banks on both the east and west sides of the creek between Miller Avenue and Bollinger Road," though particular attention was paid to the bank rehabilitation sites, creek bed, and access locations. Based on the results of the survey and an archival and records search, Pacific Legacy, Inc. archeologists determined there would be a low likelihood of encountering cultural resources during ground disturbing activities (Pacific Legacy 2018).

# Discussion

**Would the Project cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:**

**a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC Section 5020.1(k), or**

The Cultural Resources Survey Memorandum (**Appendix F**) determined there are no cultural resources which are listed or eligible for listing in the NRHP, CRHR, or any other local register of historical resources located in the Project area, including tribal cultural resources. Therefore, there would be **no impact**.

**b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in Subdivision (c) of PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.**

The Cultural Resources Survey Memorandum (**Appendix F**) prepared for the Project did not suggest presence of tribal cultural resources in the Project area. Therefore, no known Tribal Cultural Resources have been identified (as defined in Section 21074) within the Project area and the Project would not cause a substantial adverse change in the significance of a known tribal cultural resource.

In the event that unknown tribal cultural resources are encountered during construction activities, Valley Water would implement BMP CU-1 (*Accidental Discovery of Archaeological Artifacts, Tribal Cultural Resources, or Burial Remains*), which would require that work at the location of the find would be halted immediately within 100 feet of the find and a “no work” zone shall be established utilizing appropriate flagging to delineate the boundary of this zone. A Consulting Archaeologist would visit the discovery site as soon as practicable for identification and evaluation pursuant to PRC Section 21083.2 and CCR Section. If the archaeologist determines that the artifact is not significant, the archaeologist would determine if he artifact or resource can be avoided and, if so, will detail avoidance procedures. If the artifact cannot be avoided, the archaeologist would develop within 48 hours an Action Plan which would include provisions to minimize impacts and, if required, a Data Recovery Plan for recovery of artifacts in accordance with PRC Section 21083.2 and Section 15126.4 of the CEQA Guidelines. If a tribal cultural resource cannot be avoided, the Action Plan would include notification of the appropriate Native American Tribe, and consultation with the tribe regarding acceptable recovery options.

Consistent with BMP CU-1, if burial finds are accidently discovered during construction, work in affected areas would be restricted or stopped until proper protocols are met. Upon discovering any burial site as evidenced by human skeletal remains, the County Coroner would be immediately notified, and the field crew supervisor shall take immediate steps to secure and protect such remains from vandalism during periods when work crews are absent. No further excavation or disturbance within 100 feet of the site or any nearby area reasonably suspected to overlie adjacent remains may be made except as authorized by the County Coroner, NAHC, and/or the County Coordinator of Indian Affairs. Therefore, impacts resulting from the destruction of tribal cultural resources would be **less than significant**.

# Utilities and Service Systems

| Would the Project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects? | ☐ | ☐ | ☒ | ☐ |
| b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years? | ☐ | ☐ | ☒ | ☐ |
| c) Result in a determination by the waste water treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? | ☐ | ☐ | ☐ | ☒ |
| d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals? | ☐ | ☐ | ☒ | ☐ |
| e) Comply with federal, State, and local management and reduction statutes and regulations related to solid waste? | ☐ | ☐ | ☐ | ☒ |

## Regulatory Setting

### Assembly Bill 939

The primary legislation related to the environmental impacts with respect to solid waste management is AB 939. AB 939 requires all California counties to prepare integrated waste management plans and all municipalities to divert 50 percent of the waste stream from landfill disposal by the year 2000 and each year thereafter. The City of Cupertino is currently in compliance with AB 939 requirements for 50 percent landfill diversion.

AB 939 also established the California Integrated Waste Management Board, which was renamed CalRecycle. CalRecycle is responsible for reducing waste, promoting the management of all materials to their highest and best use, and protecting public health/safety and the environment. To meet these responsibilities, CalRecycle has enforcement authority in solid waste facility operation and closure; waste diversion planning, programs, and technical assistance; recycled-content newsprint; recycled-content trash bags; used oil recycling; and waste tire hauling and storage.

### City of Cupertino General Plan

The City of Cupertino General Plan contains policies related to utilities and service systems (**Table 4-14**).

**Table 4-14.** Cupertino General Plan Policies Related to Utilities

| Policy No. | Policy Description |
|---|---|
| INF-1.2: Maintenance | Ensure that existing facilities are maintained to meet the community's needs. |
| INF-2.1: Maintenance | Maintain the City's right-of-way and traffic operations systems. |
| INF-2.4: Undergrounding Utilities | Explore undergrounding of utilities through providers, public projects, private development and agency funding programs and grants. |
| INF-3.1: Coordination with Providers | Coordinate with water providers and agencies in their planning and infrastructure process to ensure that the City continues to have adequate supply for current needs and future growth. |
| INF-4.1: Planning and Management | Create plans and operational policies to develop and maintain an effective and efficient stormwater system. |
| INF-5.1: Infrastructure | Ensure that the infrastructure plans for Cupertino's wastewater system = providers continue to meet the City's current and future needs. |
| INF-7.3: Operations | Encourage public agencies and private property owners to design their operations to exceed regulatory waste diversion requirements. |
| INF-8.1: Reducing Waste | Meet or exceed Federal, State and regional requirements for solid waste diversion through implementation of programs….Encourage recycling and reuse of building materials during demolition and construction of City, agency and private projects. |

Source: City of Cupertino 2015a

# Existing Conditions

Valley Water manages an integrated water resources system that includes the supply of clean, safe water; flood protection; and stewardship of streams on behalf of Santa Clara County's 1.9 million residents. Valley Water manages ten dams and surface water reservoirs, three water treatment plants, and more than 275 miles of streams.

## Water

The City of Cupertino's water is provided by the California Water Company and the San Jose Water Company. San Jose Water Company provides water for residents and businesses in Cupertino south of Stevens Creek Boulevard, which includes the Project area. Both retailers purchase their water supply from Valley Water which receives water from the Rinconada Treatment Plant and wells fed by groundwater.

## Wastewater

The wastewater collection and treatment system serving Cupertino is provided by the Cupertino Sanitary District and the City of Sunnyvale. A majority of the City's wastewater treatment is provided by the San Jose-Santa Clara Regional Wastewater Facility, which is jointly owned by the cities of San Jose and Santa Clara. The City of Sunnyvale provides wastewater treatment service for Cupertino's commercial properties along Stevens Creek Boulevard, east of Finch Avenue, and a portion of the Rancho Rinconada neighborhood adjacent to the Project area. The City of Sunnyvale operates a sewer line that crosses through the Project area near Site 9, daylighting over the creek. No wastewater is currently produced within the Project area.

### Storm Water Drainage

The City of Cupertino's storm drainage system consists of storm drains with outfalls to creeks, including Calabazas Creek and Regnart Creek. The City of Cupertino adopted a Storm Drain Management Plan in 2018, which establishes a prioritized capital improvement program to reduce the risk of flooding. The City of Cupertino is regulated by the Municipal Regional Stormwater NPDES Permit (MRP). The MRP is issued by the RWQCB and requires the City to implement a stormwater pollution prevention program. To meet these requirements, the City joined with 15 other agencies to establish the Santa Clara Valley Urban Runoff Pollution Prevention Program, which develops solutions to control urban runoff quality.

### Solid Waste

The City of Cupertino contracts with Recology South Bay for solid waste, recycling, compost, and yard waste collection services. City residents and businesses served by Recology have achieved a 69 percent diversion rate in 2012. Non-hazardous solid waste is taken to Newby Island Sanitary Landfill for processing, and recyclable materials are handled by Recology South Bay. The Newby Island Sanitary Landfill is anticipated to have sufficient capacity until June 2025. No solid waste is currently produced in the Project area.

### Gas and Electricity

Pacific Gas & Electric Company (PG&E) provides electrical and natural gas transmission and distribution services to the City of Cupertino. As of 2017, Silicon Valley Clean Energy is the default electricity provider, with PG&E as an optional electricity provider. PG&E overhead electrical distribution lines parallel a majority of the Project area, other than along Creekside Park. No known major natural gas pipelines intersect the Project area.

## Discussion

**a) Would the Project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?**

The Project involves rehabilitation of the banks of Calabazas Creek. Construction would require a small amount of potable or reclaimed water during construction for dust suppression, distributed to the site via water trucks. Water would also be required for irrigation of the native trees planted at Sites 9 and 10 for a period of 3 to 5 years. However, adequate sources of water are currently available, and no new or expanded water treatment facilities would be required to provide the minimal amount of irrigation water. Wastewater may be generated during construction, but it would be minimal, and Project would not generate wastewater during operation. Therefore, the Project would not result in the need for new, upgraded, or expanded water or wastewater facilities.

The Project would install riprap and sheet pile walls in limited areas along the creek and would not result in an increase of impervious surfaces. The Project would not change water conveyance or stormwater runoff. Therefore, the Project would not result in construction of new storm water drainage facilities or expansion of existing facilities.

The sewer line that crosses over the creek at Site 9, owned and managed by the City of Sunnyvale, would be decommissioned to allow for removal of the pipe, utility bridge, and existing log revetment wall (protecting the existing west abutment). The City of Sunnyvale has adequate capacity on other nearby sewer lines to divert the wastewater serviced by this line

without requiring construction of new sewer lines or wastewater treatment facilities. Other types of facilities including water, electric power, natural gas, and telecommunications would not be interrupted by the Project, and addition or expansion of these facilities would not be necessary as a result of the Project, as the operational utility demand would remain unchanged from baseline conditions. Therefore, the impact would be **less than significant**.

**b) Would the Project have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry and multiple dry years?**

Water use during Project construction would be limited to dust suppression and temporary irrigation of trees planted at Sites 9 and 10. Water for dust suppression would be transported to the Project area via water trucks. After bank rehabilitation work is complete, native trees would be planted at Sites 9 and 10 and temporary irrigation would be required during the plant establishment period of 3 to 5 years. A water truck would routinely connect into the irrigation system providing water for irrigation during the plant establishment period. All water use at the site would be temporary. Once operational, the Project would not result in an increased demand for water from existing conditions. Therefore, no new or expanded water supply entitlements would be required to serve the Project, and the impact would be **less than significant**.

**c) Would the Project result in a determination by the wastewater treatment provider, which serves or may serve the Project that it has adequate capacity to serve the Project's projected demand in addition to the provider's existing commitments?**

The Project does not include uses (e.g. residential, commercial, etc.) that would result in wastewater discharge requiring treatment at the San José-Santa Clara Regional Wastewater Facility. Therefore, the Project would not result in a determination by any wastewater treatment provider, which serves or may serve the Project, that it has inadequate capacity to serve the Project's projected demand in addition to the provider's existing commitments. As a result, the Project would have **no impact** on wastewater treatment facilities.

**d) Would the Project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?**

Construction would generate solid waste associated with construction materials, excavation spoils, vegetation removal, and general refuse, which would be disposed of at a local landfill. Excavation spoils may be reused at other bank repair sites if it is free of contaminants and is appropriate for the proposed use. Up to 8,870 ~~9,120~~ cubic yards of excavated spoils and 29 ~~32~~ trees would be hauled off-site. Material recycling and mulching of removed vegetation would be implemented to the maximum extent practicable. The closest landfill to the Project area is the Newby Island Sanitary Landfill, located approximately 10 miles northeast at 1601 Dixon Landing Road in Milpitas. The landfill has a total estimated capacity of 65.9 million cubic yards. The landfill has a permitted throughput of 4,000 tons per day and is anticipated to have sufficient capacity until 2041, its expected closure date. Given the small amount of solid waste that would be generated by the proposed project and the remaining capacity available at the Newby Island Sanitary Landfill, the Project would be served by a landfill with sufficient permitted capacity to accommodate the Project's solid waste disposal needs. The Project would not generate additional waste once completed. Impacts related to solid waste disposal would be **less than significant**.

**e) Would the Project comply with federal, State, and local management and reduction statutes and regulations related to solid waste?**

The Project would comply with all applicable federal, State, and local statutes and regulations related to solid waste, including recycling programs. The Project would not impair the City of Cupertino's requirement under AB 939 for 50 percent landfill diversion. Once operational, the Project would not result in an increase in the amount of solid waste produced from maintenance of the creek in the Project area. **No impact** would occur.

# Wildfire

| **If located in or near State responsibility areas or lands classified as very high fire hazard severity zones, would the Project:** | **Potentially Significant Impact** | **Less Than Significant with Mitigation Incorporated** | **Less Than Significant Impact** | **No Impact** |
|---|---|---|---|---|
| a) Substantially impair an adopted emergency response plan or emergency evacuation plan? | ☐ | ☐ | ☐ | ☒ |
| b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire? | ☐ | ☐ | ☐ | ☒ |
| c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment? | ☐ | ☐ | ☐ | ☒ |
| d) Expose people or structures to significant risks, including downslope, or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes? | ☐ | ☐ | ☐ | ☒ |

## Regulatory Setting

The CEQA Guidelines were amended in 2019 to address the need to evaluate wildfire impacts. The Appendix G checklist amendments apply to projects located in or near State responsibility areas (where the state has financial responsibility of preventing and suppressing fires), or lands classified as very high fire severity zones by local agencies.

The City of Cupertino General Plan (2015) only includes policies related to wildfire for areas prone to wildfire hazards, and therefore do not apply to the Project.

## Existing Conditions

The State of California and Santa Clara County Fire Hazard Severity Zone maps are based on an evaluation of fire history, existing and potential fuel, flame length, blowing embers, terrain, weather, and the likelihood of buildings igniting. The Fire Hazard Severity Zone maps indicate that the Project area is within a LRA for determining the risk of wildfires, and occurs outside of a designated Very High Fire Hazard Severity Zone (CalFire 2008). Furthermore, the Project area is not part of the Wildland Urban Interface Zone, which is the primary area of concern for risks associated with wildfires.

The City of Cupertino's General Plan states: "the urbanized portions of Cupertino are not exposed to a high risk of fire. The City is served by a well-managed fire protection service as well as a fire prevention program" (City of Cupertino 2015a).

# Discussion

**a) Would the Project substantially impair an adopted emergency response plan or emergency evacuation plan?**

The Project is not located in or near a State responsibility areas or lands classified as very high fire hazard severity zones. **No impact** would occur.

**b) Would the Project, due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?**

The Project is not located in or near State responsibility areas or lands classified as very high fire hazard severity zones. **No impact** would occur.

**c) Would this Project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?**

The Project is not located in or near State responsibility areas or lands classified as very high fire hazard severity zones. **No impact** would occur.

**d) Would the Project expose people or structures to significant risks, including downslope, or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?**

The Project is not located in or near State responsibility areas or lands classified as very high fire hazard severity zones. **No impact** would occur.

# Mandatory Findings of Significance

CEQA requires that the analysis of potential project impacts include cumulative impacts. CEQA defines cumulative impacts as "two or more individual effects which, when considered together are considerable or which compound or increase other environmental impacts." This analysis of cumulative impacts need not be as in-depth as what is performed relative to the project, but instead is to "be guided by the standards of practicality and reasonableness."

Past, present, and reasonably foreseeable future projects occurring in the vicinity of the proposed project sites could result in cumulative impacts in combination with Project impacts. These projects have been identified by reviewing local and regional planning agencies' websites, general plans, and other planning documents for approved, ongoing, and proposed projects in the project vicinity.

| Would the Project: | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? | ☐ | ☒ | ☐ | ☐ |
| b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of the past projects, the effects of other current projects, and the effects of probable future projects)? | ☐ | ☐ | ☒ | ☐ |
| c) Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? | ☐ | ☐ | ☒ | ☐ |

## Discussion

**a) Would the Project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?**

While the Project would result in potentially significant impacts on biological resources and from noise, implementation of applicable biological and noise BMPs and mitigation measures as proposed in this MND would ensure that the Project would not substantially degrade the quality of the environment; substantially reduce the habitat, population, or range of a plant or animal species; cause a fish or wildlife population to drop below self-sustaining levels,

threaten to eliminate a plant or animal community; or reduce the number or restrict the range or a rare or endangered plant or animal. While the Project would permanently impact a small area of riparian habitat and remove riparian trees, these impacts would be fully mitigated in accordance with **MM-BIO-4** (*Restore and/or Enhance Riparian Habitat*) and **MM-BIO-5** (*Protection and Replacement of Protected Trees*).

The Project would not result in significant impacts on cultural resources given the low likelihood of encountering cultural resources, past disturbance in the Project area, and limited excavation of native soils. BMP CU-1 (*Accidental Discovery of Archeological Artifacts, Tribal Cultural Resources, or Burial Remains*) would avoid or minimize any potential impacts to cultural resources by requiring work to stop in the area if resources are found.

Therefore, with BMPs and mitigation measures, the impact would be **less than significant**.

**b) Would the Project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of the past projects, the effects of other current projects, and the effects of probable future projects)?**

As defined by Section 15344(b) of the CEQA Guidelines “the change in the environment which results from the incremental impact of the Project when added to other closely related past, present, and reasonable [sic] foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.” In addition to Project-specific impacts, this evaluation considered the Project’s potential for incremental effects that are cumulatively considerable.

Valley Water is currently planning a fence relocation project for summer 2020 intended to allow Valley Water to reclaim its right of way in Calabazas Creek. The fence relocation project would relocate residential fences to the appropriate property lines, outside of Valley Water’s right of way. This fence relocation project would not result in potentially significant effects pursuant to CEQA. Viewed in conjunction with the fence relocation project, the Project would not result in cumulatively considerable effects. After construction, there could be minor effects from subsequent projects involving bank maintenance performed under Valley Water’s SMP, but the scale and frequency of any such projects would decrease as compared to maintenance of the existing creek corridor, as the Project would address the most critical maintenance needs in the area. No other projects are anticipated within the Project area.

While the above analysis finds that the Project would result in potentially significant impacts on biological resources and from noise, mitigation measures would reduce the Project impacts in these areas to a level of less-than-significant and to a level where the Project’s contribution to a cumulative impact would not be cumulatively considerable. The impact would be **less than significant**.

**c) Would the Project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?**

The above analysis shows that the Project would not result in significant impacts with mitigation measures incorporated. While the analysis finds that the Project would result in some adverse impacts to biological resources and from noise, mitigation measures would sufficiently reduce those impacts to a less than significant level. The Project would not result in changes to existing land use and the majority of potential effects that could impact human

beings would be temporary. Therefore, the Project would not cause substantial adverse effects on human beings, directly or indirectly, and the impact would be **less than significant**.

# Chapter 5
# Report Preparation

This chapter lists those individuals who contributed to the preparation of this MND and supporting technical reports.

## Valley Water – Mitigated Negative Declaration

| Contributor | Position |
|---|---|
| Alex Hunt | Associate Environmental Planner |
| Elise Latedjou-Durand | Senior Environmental Planner |
| Kirsten Struve | Acting Environmental Planning Manager |
| Shawn Lockwood | Associate Wildlife Biologist |
| Janell Hillman | Senior Plant Ecologist |
| Navroop Jassal | Senior Biologist |
| Jen-Men Lo | Associate Engineer – Civil |
| Roger Narsim | Engineering Unit Manager |

## Valley Water – Biological Site Assessment

| Contributor | Position |
|---|---|
| Shawn Lockwood | Associate Wildlife Biologist |
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## WRA – Aquatic Resource Delineation Report

| Contributor | Position |
|---|---|
| Elan Alford | Biologist |
| Leslie Allen | Senior Project Manager |

## Pacific Legacy - Cultural Resources Investigation

| Contributor | Position |
|---|---|
| Lisa Holm, PhD | Senior Archeologist |

# Chapter 6
# **References**

Bay Area Air Quality Management District (BAAQMD). 2017. *California Environmental Quality Act Air Quality Guidelines.* Available at: http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed: July 2019.

Baker, M.D., M.J. Lacki, G.A. Falxa, P.L. Droppleman, R.A. Slack, and S.A. Slankard. 2008. "Habitat Use of Pallid Bats in Coniferous Forests of Northern California." Northwest Science 82(4):269–275.

Barbour, R. W., and W. H. Davis. 1969. Bats of America. Univ. of Kentucky Press, Lexington. 286pp

Bousman, W. G. 2016. A Checklist of the Birds of Santa Clara County. Santa Clara Valley Audubon Society, Cupertino, California.

_____. 2007. W. G. Bousman, editor. Breeding Bird Atlas of Santa Clara County. Santa Clara Valley Audubon Society, Cupertino, California.

California Department of Conservation (CDC). 2002a. California Geologic Survey. *Seismic Hazard Zone Report for the Cupertino 7.5 Minute Quadrangle, Santa Clara, Alameda, and San Mateo Counties, California*. Available at: https://gmw.conservation.ca.gov/SHP/EZRIM/Reports/SHZR/SHZR_068_Cupertino.pdf. Accessed: July 2019.

_____. 2002b. *Earthquake Zones of Required Investigation: Cupertino Quadrangle*. Available at: https://gmw.conservation.ca.gov/SHP/EZRIM/Maps/CUPERTINO_EZRIM.pdf. Accessed: July 2019.

_____. 2009. *Tsunami Inundation Maps*. Available at: https://www.conservation.ca.gov/cgs/tsunami/maps. Accessed: July 2019.

_____. 2016a. *Santa Clara County Important Farmlands Map*. Available at: ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/2016/scl16.pdf. Accessed: August 2019.

_____. 2016b. *Santa Clara County Williamson Act Map*. Available at: ftp://ftp.consrv.ca.gov/pub/dlrp/wa/SantaClara_15_16_WA.pdf. Accessed: August 2019.

_____. 2018. *EQ Zapp: California Earthquake Hazards Zone Application*. Available at: https://www.conservation.ca.gov/cgs/geohazards/eq-zapp. Accessed: July 2019.

California Department of Fish and Wildlife (CDFW). 2019a. California Natural Diversity Data Base (CNDDB). Biogeographic Data Branch, Sacramento, CA. Accessed: April 26, 2019.

_____. 2019b. *Report to the Fish and Game Commission: Evaluation of the petition from the Xerces Society, Defenders of Wildlife, and the Center for Food Safety to list four species of bumble bees as endangered under the California Endangered Species Act*. State of California Natural Resources Agency, Department of Fish and Wildlife.

_____. 2019c. *Natural Communities List*. Available at: https://wildlife.ca.gov/Data/VegCAMP/Natural-Communities. Accessed: March 2020.

California Department of Water Resources (DWR). 2018. *Bulletin 118*. Available at: https://water.ca.gov/Programs/Groundwater-Management/Bulletin-118. Accessed: July 2019.

California Energy Commission (CEC). 2019a.
*Total System Electric Generation, 2017 Total System Electric Generation in Gigawatt*

*Hours*. Available at: http://www.energy.ca.gov/almanac/electricity_data/total_system_power.html. Accessed: July 2019.

_____. 2019b. *Supply and Demand of Natural Gas in California*. Available at: http://www.energy.ca.gov/almanac/naturalgas_data/overview.html. Accessed: July 2019.

_____. 2019c. *Oil Supply Sources to California Refineries*. Available at: http://www.energy.ca.gov/almanac/petroleum_data/statistics/crude_oil_receipts.html. Accessed: July 2019.

California Native Plant Society (CNPS). 2019. *Rare Plant Program: Inventory of Rare and Endangered Plants within the 7.5-minute U.S. Geologic Survey Quadrangles (surrounding nine quadrangles).* 7th edition, version 8-03. Available at: http://www.rareplants.cnps.org/. Accessed: April 23, 2019.

California Public Utilities Commission (CPUC). 2019. *Renewable Portfolio Standard (RPS) Program Homepage.* Available at: https://www.cpuc.ca.gov/rps/. Accessed: August 2019.

CalFire. 2008. *Santa Clara County Very High Hazard Fire Severity Zones in LRA as Recommended by CalFire*. October 8.

City of Cupertino. 2002. City of Cupertino Noise Ordinance. Available at: https://www.cupertino.org/home/showdocument?id=9013 Accessed May 2020.

_____. 2015a. City of Cupertino General Plan. Available at: https://www.cupertino.org/our-city/departments/community-development/planning/general-plan/general-plan. Accessed: July 2019.

_____. 2015b. City of Cupertino Climate Action Plan. Available at: https://www.cupertino.org/home/showdocument?id=9605. Accessed July 2019.

_____. 2019a. City of Cupertino General Plan Land Use Map. Available at: https://www.cupertino.org/home/showdocument?id=13148. Accessed July 2019.

_____. 2019b. City of Cupertino Zoning Map. Available at: https://www.cupertino.org/home/showdocument?id=13535. Accessed July 2019.

_____. 2019c. City of Cupertino Tree Ordinance. Available at: LINK. Accessed MONTH YEAR.

_____. 2019d. City of Cupertino Emergency Operations Plan. Available at: https://www.cupertino.org/home/showdocument?id=24990 Accessed MONTH YEAR.

_____.2020. City of Cupertino Truck Traffic Routes. Available at: https://codelibrary.amlegal.com/codes/cupertino/latest/cupertino_ca/0-0-0-48900#JD_Chapter11.32. Accessed May 2020.

Clahan et. al. 2006. *Seismic Hazard Zone Report for the Mountain View 7.5-Minute Quadrangle, Santa Clara County, California.* Prepared for California Department of Conservation. Available at: http://206.170.189.142/SHP/EZRIM/Reports/SHZR/SHZR_060_Mountain_View.pdf. Accessed July 2019.

Cryan, P. M. 2003. Seasonal Distribution of Migratory Tree Bats (Lasiurus and Lasionycteris) in North America. USGS Staff – Published Research. 119.

Department of Toxic Substances Control (DTSC). 2020. *EnviroStor Database*. Available at: https://www.envirostor.dtsc.ca.gov/public/. Accessed: May 2020.

Federal Emergency Management Agency (FEMA). 2009. *Flood Insurance Rate Map*. Available at: https://msc.fema.gov/portal/home. Accessed: July 2019.

Hilty, Jodi & Lidicker, William & Merenlender, Adina. 2006. *Corridor Ecology: The Science and Practice of Linking Landscapes for Biodiversity Conservation*.

Holzer, T.L., Noce, T.E., Bennett, M.J., 2008. *Liquefaction Hazard Maps for Three Earthquake Scenarios for the Communities of San Jose, Campbell, Cupertino, Los Altos, Los Gatos, Milpitas, Mountain View, Palo Alto, Santa Clara, Saratoga, and Sunnyvale, Northern Santa Clara County, California*. U.S. Geological Survey Open-file Report 2008-1270, 29 p. Available at: http://pubs.usgs.gov/of/2008/1270/.

Johnston; D. S., and S. Whitford. 2009 (western red bat)

Lichvar, R.W. and S.M. McColley. 2008. A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States. A Delineation Manual. Corps, Cold Regions Research and Engineering Laboratory, ERDC/CRREL TR-08-12.

Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. The National Wetland Plant List: 2016 wetland ratings. Phytoneuron 2016-30:1–17.

National Parks Service (NPS). 1995. *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation*. Available at: https://www.nps.gov/subjects/nationalregister/upload/NRB-15_web508.pdf. Accessed: January 2020.

Natural Resources Conservation Service (NRCS). 2019. *Web Soil Survey*. Available at: http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm. Accessed: July 2019.

_____. 2015. *Supplement to the Soil Survey of the Santa Clara Area, California, Western Part*. Available at: http://soils.usda.gov/survey/printed_surveys/. Accessed: July 2019.

O'Shea, T. J., and T. A. Vaughan. 1977. Nocturnal and seasonal activities of the pallid bat, Antrozous pallidus. Journal of Mammalogy 58:269-284.

Pacific Legacy, Inc. 2018. *Cultural Resources Investigation for the Calabazas Creek Bank Rehabilitation Project*. Prepared for Valley Water.

Santa Clara County. 1994. *Santa Clara County General Plan*. Available at: https://www.sccgov.org/sites/dpd/DocsForms/Documents/GP_Book_A.pdf. Accessed: June 2019.

_____. 2002. Santa Clara County Geologic Hazard Zones. Available at: https://www.sccgov.org/sites/dpd/DocsForms/Documents/GEO_GeohazardATLAS.pdf Accessed June 2019.

_____. 2017. *Santa Clara County Operational Area Hazard Mitigation Plan*. Office of Emergency Services, County of Santa Clara & Santa Clara County Fire.

San Francisco Bay Regional Water Quality Control Board (RWQCB). 2018. *Water Quality Control Plan (Basin Plan) for the San Francisco Bay Basin*. Available at: https://www.waterboards.ca.gov/sanfranciscobay/basin_planning.html. Accessed: January 2020.

San Francisco Estuary Institute-Aquatic Science Center. 2010. *Historical Vegetation Patterns and Drainage Patterns of Western Santa Clara Valley: A technical memorandum describing landscape ecology in Lower Peninsula, West Valley, and Guadalupe Watershed Management Areas*. Available at: https://www.sfei.org/sites/default/files/biblio_files/HistoricalEcology_of_Western_SantaClaraValley_SFEI_111910.pdf. Accessed: July 2020.

____. 2018. *Resilient Landscape Vision for the Calabazas Creek, San Tomas Aquino Creek, and Pond A8 Area: Bayland-Creek Reconnection Opportunities*. Available at: https://www.sfei.org/sites/default/files/biblio_files/CalabazasVision_SFEI_061118_lowres_v2.pdf. Accessed: July 2020.

State Water Resources Control Board (SWRCB). 2019. *GeoTracker Database*. Available at: https://geotracker.waterboards.ca.gov/. Accessed: July 2019.

U.S. Army Corps of Engineers (USACE). 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). Corps, Environmental Laboratory, ERDC/EL TR-08-28. Corps (U.S. Army Corps of Engineers).

____. 1987. Field Guide for Wetland Delineation: 1987 Corps of Engineers Manual. Prepared by Wetland Training Institute, Glenwood, New Mexico.

U.S. Department of Transportation, Federal Highway Administration. 2006. *Construction Noise Handbook*, Chapter 9: Construction Equipment Noise Levels and Ranges. Available at: https://www.fhwa.dot.gov/environment/noise/construction_noise/handbook/handbook09.cfm. Accessed: August 2019.

U.S. Fish and Wildlife Service. 2019. *List of Federally Endangered and Threatened Species that may Occur in Your Proposed Project Location, and/or may be Affected by Your Proposed Project.* Sacramento USFWS. Available at: https://ecos.fws.gov/ipac/. Accessed: March 2019.

Valley Water. 2016. Groundwater Management Plan. Available at: https://s3.us-west-2.amazonaws.com/assets.valleywater.org/2016%20Groundwater%20Management%20Plan.pdf. Accessed May 2020.

Xu, J. 2019. Email communication with Valley Water Civil Engineer in the Hydrology, Hydraulics, and Geomorphology Unit on May 30, 2019.

# Valley Water

Clean Water • Healthy Environment • Flood Protection

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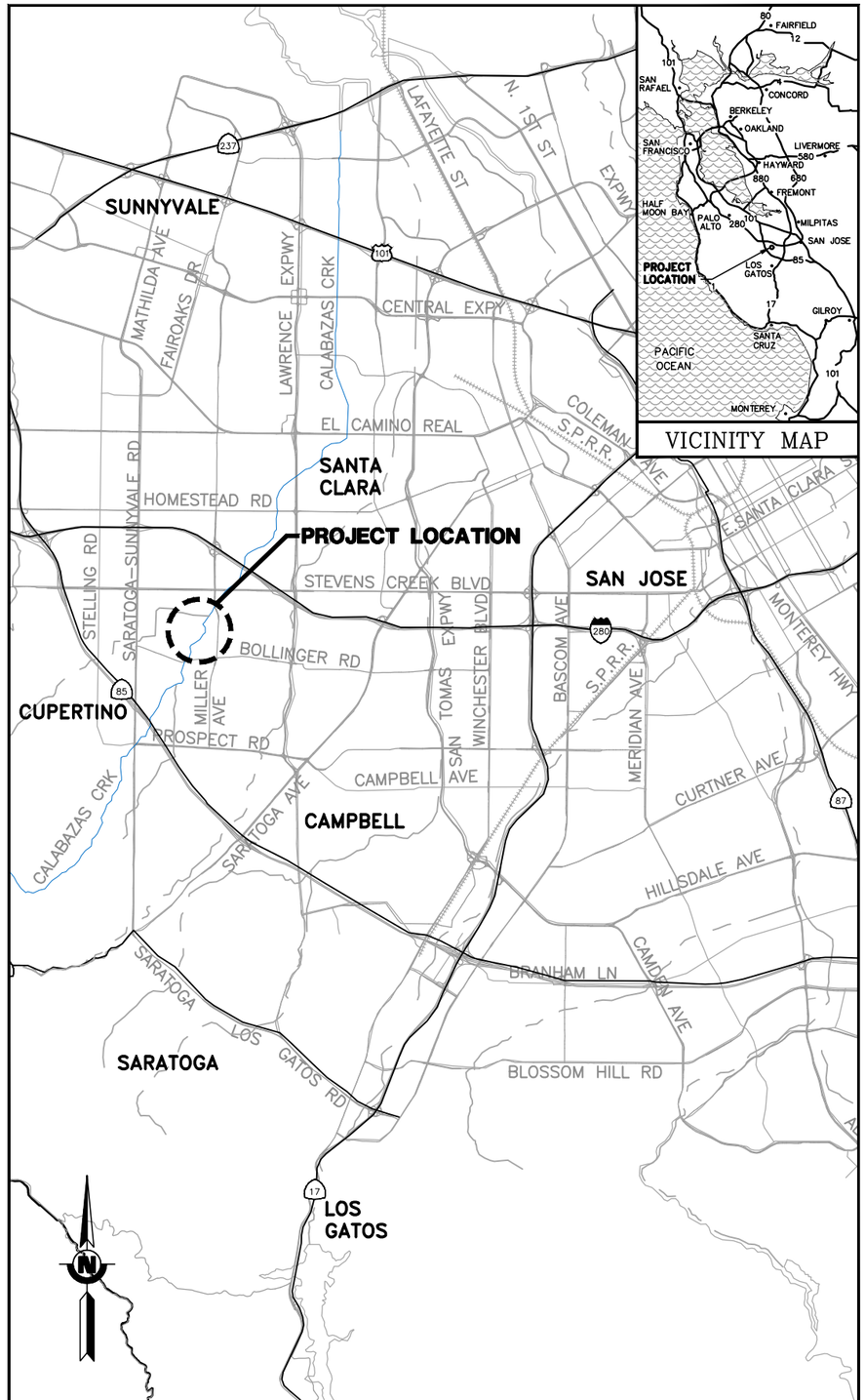
# Appendix A
## Representative Draft Design Plans




**LOCATION MAP**
**SCALE: 1" = 5,000'**

# MAP AND CONSTRUCTION PLAN

FOR

# CALABAZAS CREEK REHABILITATION PROJECT

MILLER AVENUE TO BOLLINGER ROAD

CUPERTINO, CALIFORNIA

SANTA CLARA VALLEY WATER DISTRICT

Valley Water

APPROVED BY:

REGISTERED PROFESSIONAL ENGINEER
VENKATESAN NARASIMHALU
No. 44870
CIVIL
STATE OF CALIFORNIA

VENKATESAN NARASIMHALU, PE, PLS — DATE
CAPITAL ENGINEERING MANAGER
WATERSHED DESIGN AND CONSTRUCTION DIVISION
SANTA CLARA VALLEY WATER DISTRICT

ACCEPTED BY:

NGOC NGUYEN, PE — DATE
DEPUTY OPERATING OFFICER
WATERSHED DESIGN AND CONSTRUCTION DIVISION
SANTA CLARA VALLEY WATER DISTRICT

| |
|---|
| CONTRACT NUMBER |
| C-XXXXX |
| PROJECT NUMBER |
| 62084001 |
| SHEET CODE: |
| G-01 |
| SHEET NUMBER: 1 OF XX |

USERNAME: Jennford 4/30/2020 2:09 PM
FILENAME: K:\Active Projects\MP-62084001\Calabazas Creek Rehabilitation Project\SHEETS\G-01.dwg
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# ABBREVIATIONS

ABM – AIR BLOWN MORTAR
ABS – ACRYLONITRILE–BUTADIENCE–STYRENE
AC – ASPHALT CONCRETE
ACP – ASBESTOS CEMENT PIPE
AISI – AMERICAN IRON & STEEL INSTITUTE
ALIGN – ALIGNMENT
AMP – AMPERES
ANSI – AMERICAN NATIONAL STANDARDS INSTITUTE
APPROX – APPROXIMATE
ARV – AIR RELEASE VALVE
ASA – AMERICAN STANDARD ASSOCIATION
ASTM – AMERICAN SOCIETY FOR TESTING MATERIALS
AWG – AMERICAN WIRE GAGE
AWWA – AMERICAN WATER WORKS ASSOCIATION

BC – BEGIN CURVE
BM – BENCH MARK
BT – BACKHOE TRENCH
BW – BOTH WAYS

℄ – CENTERLINE
CB – CATCH BASIN (INLET)
CCCL – CEMENT MORTAR COATED & LINED STEEL PIPE
CCEM – CEMENT CONDUIT
CCTL – CORROSION CONTROL TEST LEADS
CCP – CONCRETE CYLINDER PIPE
CFM – CUBIC FEET PER MINUTE
CI – CAST IRON
CIP – CAST IRON PIPE
CL – CLEARANCE
CLR – CLEAR
CMC – CEMENT MORTAR COAT
CML – CEMENT MORTAR LINE
CMP – CORRUGATED METAL PIPE
CO – CLEAN OUT
CONC – CONCRETE
CONT – CONTINUOUS
CP – CEMENT PIPE
CPC – PLASTIC CONDUIT
CRK – CREEK
CSP – CORRUGATED STEEL PIPE
CTP – CABLE TELEVISION POLE
CTV – CABLE TV
CU FT – CUBIC FEET
CYL – CYLINDER
CIPP – CAST–IN–PLACE PIPE

DH – DRILL HOLES
DIA – DIAMETER
DICL – DUCTILE IRON CEMENT LINED
DIP – DUCTILE IRON PIPE
DPDT – DOUBLE POLE DOUBLE THROW
D/S – DOWNSTREAM
DWR – DEPARTMENT OF WATER RESOURCES

EC – END CURVE
EG – EXISTING GROUND
ELEC – ELECTRICAL
ELEV – ELEVATION
EP – EDGE OF PAVEMENT
EQ – EQUAL
EXIST – EXISTING

FF – FULL FORCE
FH – FIRE HYDRANT
FKCL – FIBERGLASS–KRAFT WRAP CEMENT LINED
FLG – FLANGE
FP – FEEDER PRESSURE
FT – FEET

GA – GAGE
GALV – GALVANIZED
GFI – GROUND FAULT INTERRUPTER

HC – HOUSE CONNECTION (SANITARY)
HMW/PE – HIGH MOLECULAR WEIGHT POLYETHYLENE
HORIZ – HORIZONTAL
HP – HORSEPOWER

ID – INSIDE DIAMETER
IF – INSIDE FACE
IL – INDUCTIVE LOOP
IN – INCH
INSUL – INSULATION
INV – INVERT
IP – IRON PIPE
IPS – IRON PIPE SIZE

JT – JOINT TRENCH

KV – KILO VOLT

LB – CONDUIT FITTING ELBOW
LG – LONG
LLV – LONG LEG VERTICAL
LT – LEFT

MAINT – MAINTENANCE
MAX – MAXIMUM
MCD – MULTIPLE CONDUITS
MCI – MCI TELECOMMUNICATION CORP.
MH – MANHOLE
MIN – MINIMUM
MON – MONUMENT
MW – MONITORING WELL

N – NITROGEN
N/A – NOT APPLICABLE
NE – NORTHEAST
NEMA – NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NO – NUMBER
NTS – NOT TO SCALE
NW – NORTHWEST

OC – ON CENTER
OD – OUTSIDE DIAMETER
OF – OUTSIDE FACE
OH – OVERHEAD
OW – OBSERVATION WELL

ℙ – PROPERTY LINE
PCC – PORTLAND CEMENT CONCRETE
PCCP – PRESTRESSED CONCRETE CYLINDER PIPE
PE – PLAIN END
PG&E – PACIFIC GAS AND ELECTRIC
PI – POINT OF INTERSECTION
PK – PARKER–KALON SURVEY NAIL
PL – PLASTIC LINE
POT – POINT ON TANGENT
PP – POWER POLE
PRC – POINT OF REVERSE CURVE
PSI – POUND PER SQUARE INCH
PT&T – PACIFIC TELEPHONE AND TELEGRAPH
PUE – PUBLIC UTILITY EASEMENT
PV – PRECAST VAULT
PVC – POLYVINYL CHLORIDE
PVMT – PAVEMENT
PW – PUMPING WELL

R – RADIUS
RCB – REINFORCED CONCRETE BOX
RCP – REINFORCED CONCRETE PIPE
RE – REFERENCE ELECTRODE
REBAR – REINFORCING BAR
REINF – REINFORCED
REQ'D – REQUIRED
RR – RAILROAD
RSP – ROCK SLOPE PROTECTION
RT – RIGHT
RTU – REMOTE TERMINAL UNIT
R/W – RIGHT OF WAY

S – SLOPE
SCHED – SCHEDULE
SCVWD – SANTA CLARA VALLEY WATER DISTRICT
SD – STORM DRAIN
SE – SOUTHEAST
SHT – SHEET
SJMW – SAN JOSE MUNICIPAL WATER
SJWC – SAN JOSE WATER COMPANY
SOMCL – STANDARD OIL MASTIC CEMENT LINED
SPECS – SPECIFICATIONS
SPRR – SOUTHERN PACIFIC RAILROAD
SQ – SQUARE
SS – SANITARY SEWER
SSTL – STAINLESS STEEL
ST – STREET
STA – STATION
STD – STANDARD
STL – STEEL
STRD – STRANDED
SW – SOUTHWEST
SYM – SYMMETRICAL

T – TELEPHONE
T – THICKNESS OF PLATE OR DIMENSION OF WELD
TBM – TEMPORARY BENCH MARK
TC – TELEMETRY CABLE
TCA – TEMPORARY CONSTRUCTION AREA
TCE – TEMPORARY CONSTRUCTION EASEMENT
TCS – TELEMETRY CABLE SPLICE
TEL – TELEPHONE
THW – THERMAL PLASTIC MOISTURE AND HEAT RESISTANT
THWN – THERMAL PLASTIC WITH NYLON COATING MOISTURE AND HEAT RESISTANT

TOB – TOP OF BANK
TP – TEST PIT LOCATION
TR – TAPE WRAPPED
TS – TRAFFIC SIGNAL
TYP – TYPICAL

UG – UNDERGROUND
UPRR – UNION PACIFIC RAILROAD
U/S – UPSTREAM
USGS – UNITED STATES GEOLOGICAL SURVEY

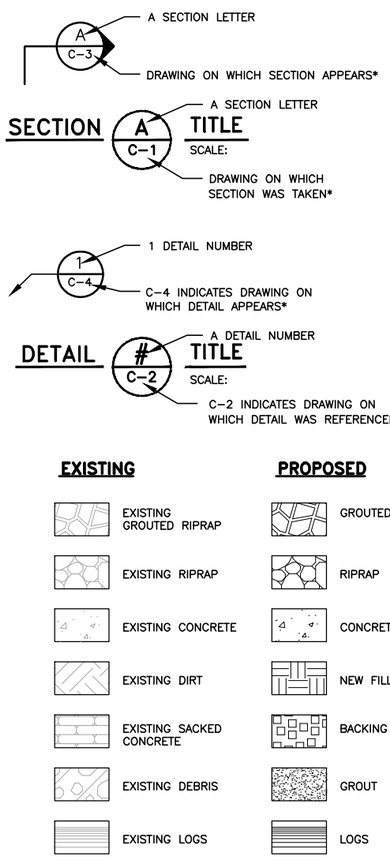
V – VOLTAGE
VAC – VOLTAGE ALTERNATING CURRENT
VCD – VACANT CONDUIT
VCP – VITRIFIED CLAY PIPE
VERT – VERTICAL

W – WATER
WP – WORK POINT
WSP – WELDED STEEL PIPE
WSCL – WRAPPED STEEL CEMENT LINED
WV – WATER VALVE
WWF – WELDED WIRE FABRIC
W/ – WITH

& – AND
@ – AT
℄ – CENTERLINE
Ø – DIAMETER
ℙ – PROPERTY LINE

## DETAIL AND SECTION DESIGNATION

* IF SECTION OR DETAIL APPEARS ON THE SAME DRAWING AS THE CALLOUT, THE DRAWING REFERENCE IS REPLACED WITH A DASH (–)




## EXISTING

EXISTING GROUTED RIPRAP
EXISTING RIPRAP
EXISTING CONCRETE
EXISTING DIRT
EXISTING SACKED CONCRETE
EXISTING DEBRIS
EXISTING LOGS

## PROPOSED

GROUTED RIPRAP
RIPRAP
CONCRETE
NEW FILL
BACKING NO.1
GROUT
LOGS

# LINE TYPE LEGEND

| EXISTING | | PROPOSED |
|---|---|---|
| CTV | ℄ CABLE TELEVISION | CTV |
| E | ℄ ELECTRICAL LINE | E |
| E/T | ℄ ELECTRICAL & TELEPHONE LINE | E/T |
| E(OH) | ℄ ELECTRICAL LINE – OVERHEAD | E(OH) |
| G | ℄ GAS LINE | G |
| IR | ℄ IRRIGATION LINE | IR |
| SD | ℄ STORM DRAIN LINE | SD |
| SS | ℄ SANITARY SEWER LINE | SS |
| T | ℄ TELEPHONE LINE | T |
| T(OH) | ℄ TELEPHONE LINE – OVERHEAD | T(OH) |
| TS | ℄ TRAFFIC SIGNAL LINE | TS |
| TC | ℄ TELEMETRY LINE | TC |
| W | ℄ WATER LINE | W |
| RCW | ℄ RECYCLED WATER LINE | RCW |
| X | ℄ BARBED WIRE FENCE LINE | X |
| | ℄ CHAIN LINK FENCE LINE | |
| // | ℄ WOODEN FENCE LINE | // |
| F | ℄ IRON FENCE LINE | F |
| TOP / TOE | CUT OR FILL SLOPE | TOP / TOE |
| | CENTER LINE | |
| ℄ | CENTER LINE | ℄ |
| | GROUND | |
| | PROPERTY–LINE | |
| | ROW–TRACT | |
| | ROW–FEE | |
| | TCE | |
| | LOT LINE | |
| | BOUNDARY LINE | |

# SYMBOLS LEGEND

## SURVEY

HORIZONTAL CONTROL
VERTICAL CONTROL
HORIZONTAL VERTICAL CONTROL
TEMPORARY BENCH MARK

## TRAFFIC CONTROL

SIGN–1
SIGN–2
BUS STOP
TRAFFIC DIRECTION
TRAFFIC CONE
CONSTRUCTION SIGN
FLASHING ARROW SIGN
TYPE I – TRAFFIC BARRICADE
TYPE III – TRAFFIC BARRICADE
K–RAIL BARRIER

## MISCELLANEOUS

ELECTROLIER
ELECTROLIER
GUY WIRE
STORM DRAIN OUTFALL

| EXISTING | | PROPOSED |
|---|---|---|
| EXISTING JOINT POLE | JP | PROPOSED JOINT POLE |
| EXISTING POWER POLE | PP | PROPOSED POWER POLE |
| EXISTING TELEPHONE POLE | TP | PROPOSED TELEPHONE POLE |
| EXISTING ELECTRICAL MANHOLE | E | PROPOSED ELECTRICAL MANHOLE |
| EXISTING ELECTRIC METER | EM | PROPOSED ELECTRIC METER |
| EXISTING STORM DRAIN MANHOLE | SD | PROPOSED STORM DRAIN MANHOLE |
| EXISTING CATCH BASIN / SD INLET | CB | PROPOSED CATCH BASIN / SD INLET |
| EXISTING SANITARY CLEANOUT | CO | PROPOSED SANITARY CLEANOUT |
| EXISTING SANITARY MANHOLE | S | PROPOSED SANITARY MANHOLE |
| EXISTING TELEPHONE MANHOLE | T | PROPOSED TELEPHONE MANHOLE |
| EXISTING WATER VALVE | WM | PROPOSED WATER VALVE |
| EXISTING WATER METER | | PROPOSED WATER METER |
| EXISTING BLOWOFF | | PROPOSED BLOWOFF |
| EXISTING FIRE HYDRANT | | PROPOSED FIRE HYDRANT |
| EXISTING GAS VALVE | GV | PROPOSED GAS VALVE |
| EXISTING GAS METER | GM | PROPOSED GAS METER |
| EXISTING DEEP ANODE BED | A | PROPOSED DEEP ANODE BED |
| EXISTING REFERENCE ELECTRODE TEST STATION | R | PROPOSED REFERENCE ELECTRODE TEST STATION |
| EXISTING INSULATION JOINT | IJ | PROPOSED INSULATION JOINT |
| EXISTING PRECAST VAULT | PV | PROPOSED PRECAST VAULT |
| EXISTING TELEMETRY CABLE PULLBOX | TL | PROPOSED TELEMETRY CABLE PULLBOX |
| EXISTING VENTILATION STRUCTURE | V | PROPOSED VENTILATION STRUCTURE |
| EXISTING TREE | | PROPOSED TREE |

| REV | DESCRIPTION | DATE | APPR |
|---|---|---|---|
| | | | |

REFERENCE INFORMATION AND NOTES

DATE APR 2020
DESIGN J. LO
DRAWN J. CORDOVA
CHECKED R. NARSIM

ENGINEERING CERTIFICATION
PROJECT ENGINEER DATE

SANTA CLARA VALLEY WATER DISTRICT
Valley Water

PROJECT NAME AND SHEET DESCRIPTION:
CALABAZAS CREEK REHABILITATION PROJECT
ABBREVIATIONS, LEGENDS AND SYMBOLS

SCALE AS SHOWN
VERIFY SCALES 0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

PROJECT NUMBER 62084001
SHEET CODE: G–04
SHEET NUMBER: XX OF XXX

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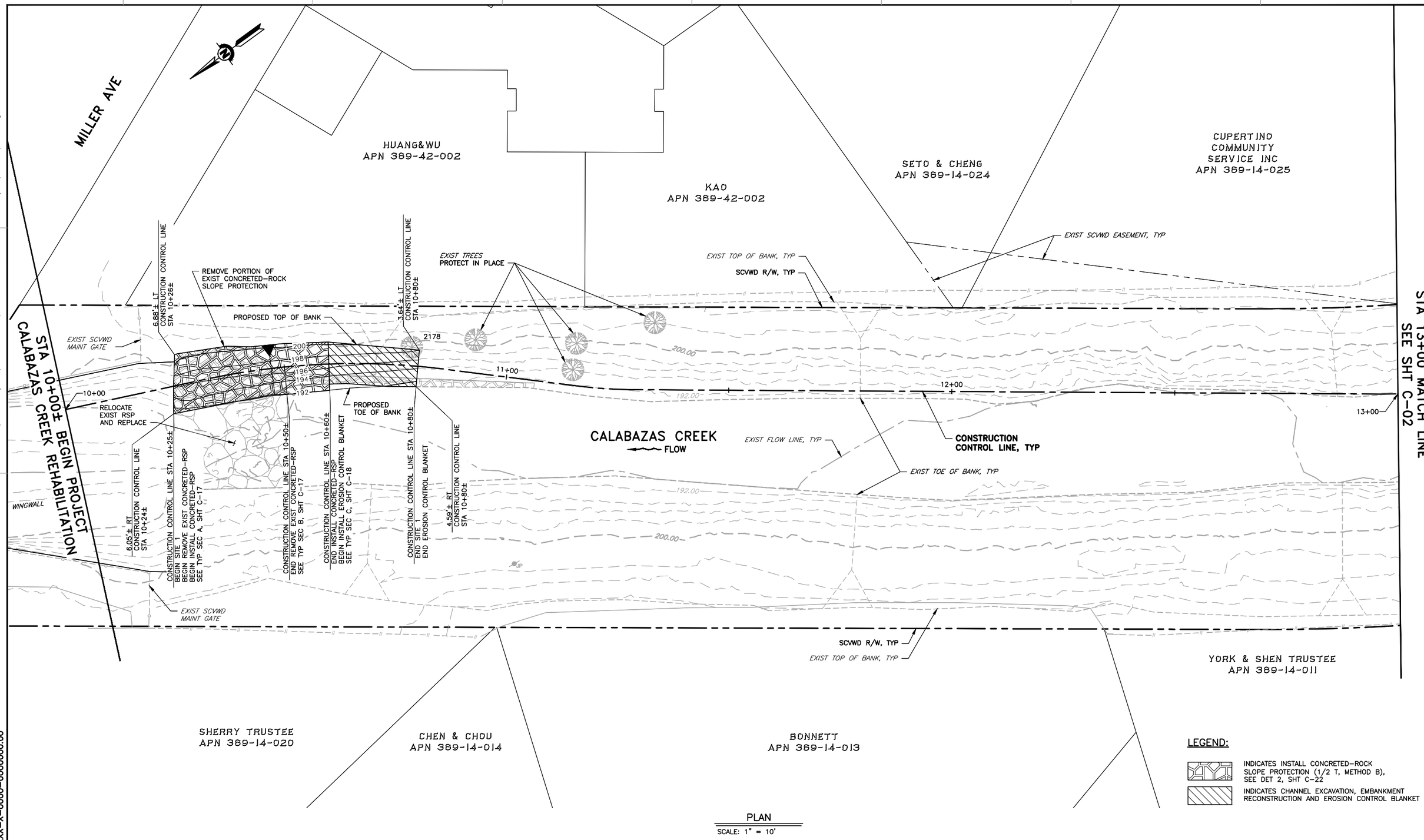


PLAN

SCALE: 1" = 10'

**LEGEND:**

INDICATES INSTALL CONCRETED-ROCK SLOPE PROTECTION (1/2 T, METHOD B), SEE DET 2, SHT C-22

INDICATES CHANNEL EXCAVATION, EMBANKMENT RECONSTRUCTION AND EROSION CONTROL BLANKET

| REV | DESCRIPTION | DATE | APPR |
|---|---|---|---|
| | | | |

REFERENCE INFORMATION AND NOTES

1. NOT ALL TREES SHOWN. ONLY TREES NEAR PROPOSED WORK ARE SHOWN AND ARE FOR INFORMATIONAL PURPOSE ONLY. SEE SHEET C-16 FOR TREE REMOVAL TABLES.

DATE APR 2020
DESIGN J. LO
DRAWN J. CORDOVA
CHECKED R. NARSIM

ENGINEERING CERTIFICATION
PROJECT ENGINEER DATE

SANTA CLARA VALLEY WATER DISTRICT
Valley Water

PROJECT NAME AND SHEET DESCRIPTION:

# CALABAZAS CREEK REHABILITATION PROJECT

PLAN
STA 10+00 TO STA 13+00

SCALE AS SHOWN
VERIFY SCALES 0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

PROJECT NUMBER 62084001
SHEET CODE: C-01
SHEET NUMBER: XX OF XXX

DOCUMENT NUMBER: XXXX-X-0000-0000000.00

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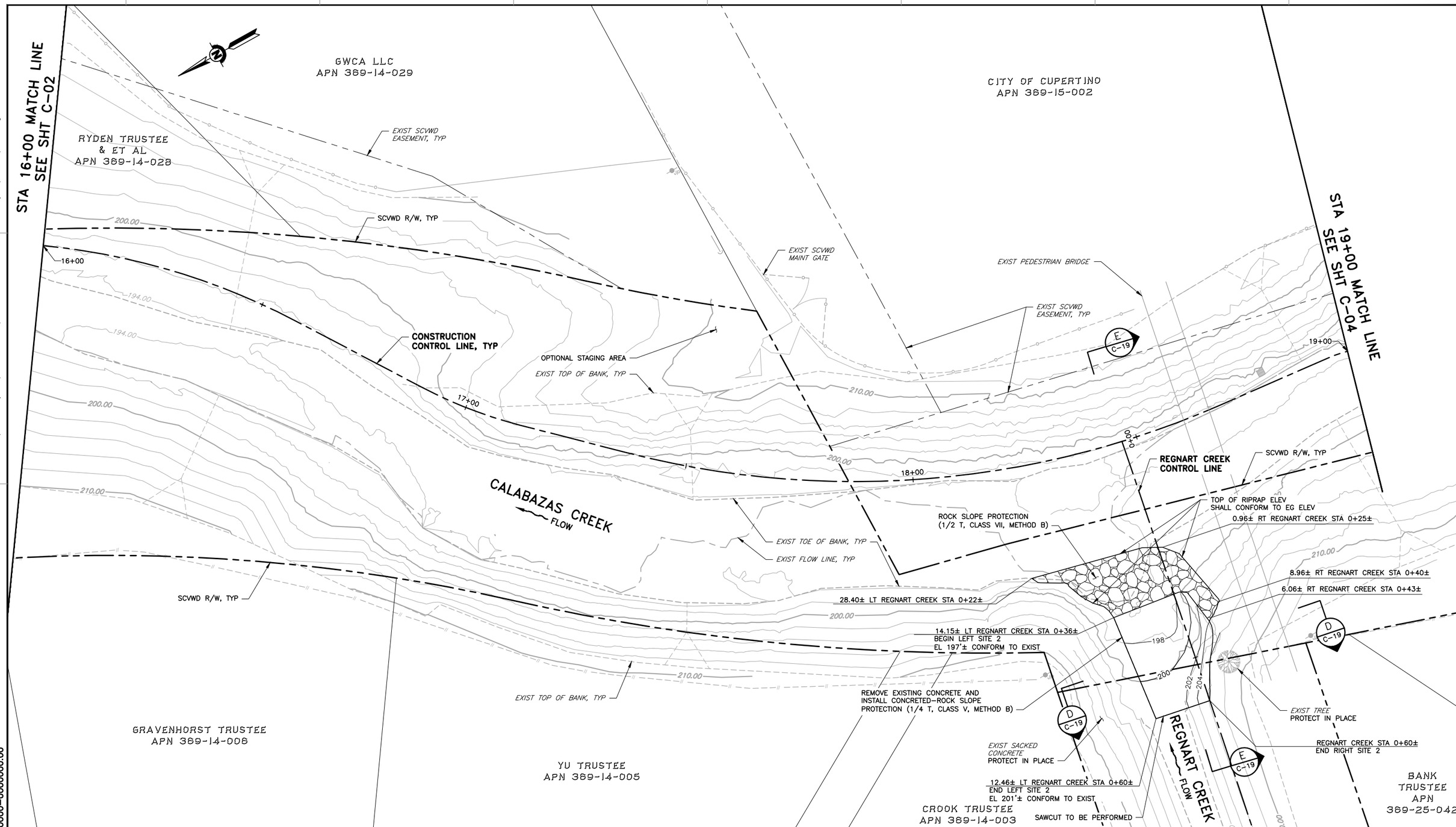


PLAN

SCALE: 1" = 10'

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DOCUMENT NUMBER: XXXX-X-0000-000000.00

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| | |
|---|---|
| DATE | APR 2020 |
| DESIGN | J. LO |
| DRAWN | J. CORDOVA |
| CHECKED | R. NARSIM |

ENGINEERING CERTIFICATION

PROJECT ENGINEER DATE

SANTA CLARA VALLEY WATER DISTRICT

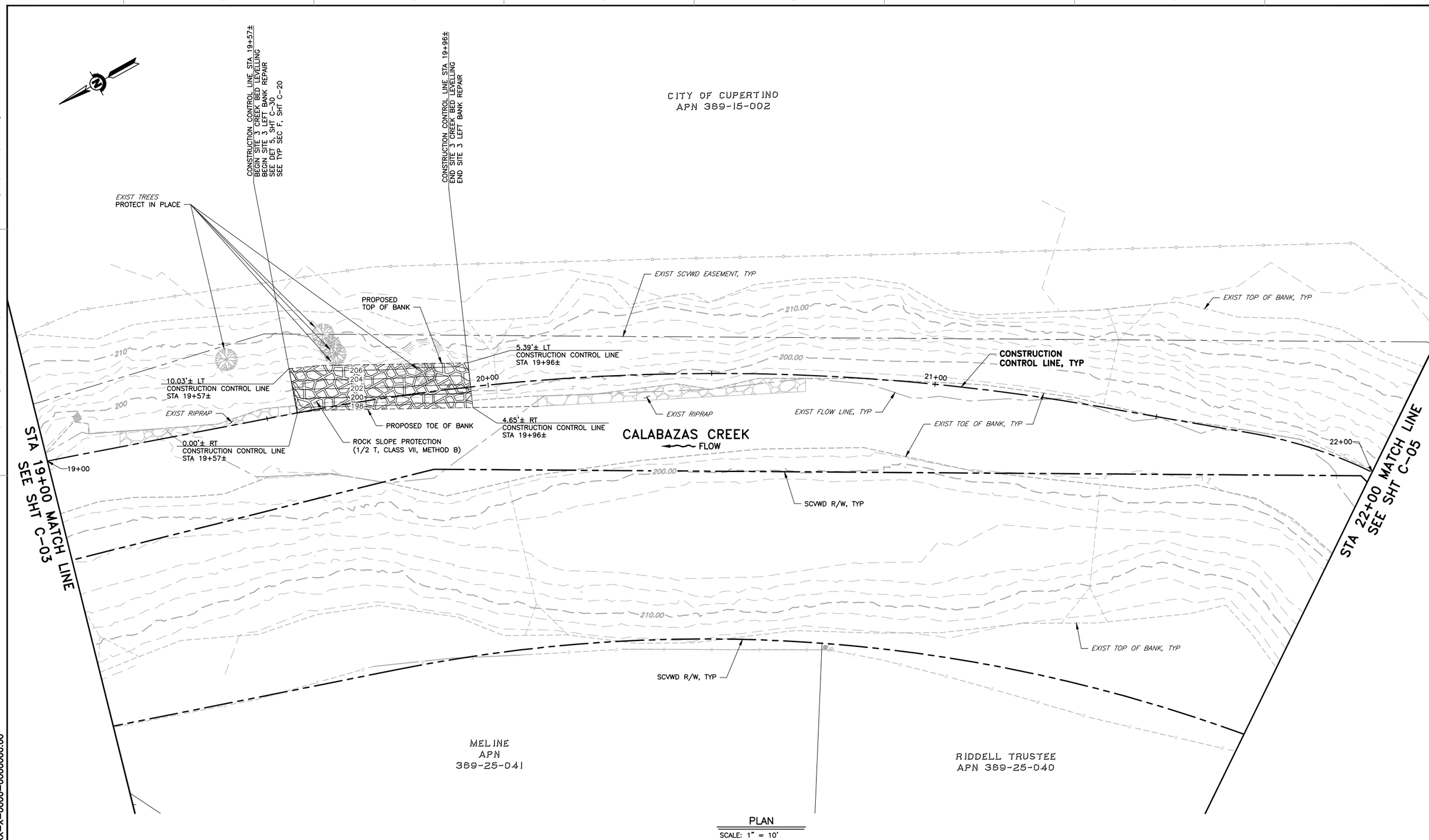
Valley Water

PROJECT NAME AND SHEET DESCRIPTION:

# CALABAZAS CREEK REHABILITATION PROJECT

## PLAN
## STA 16+00 TO STA 19+00

| | |
|---|---|
| SCALE | AS SHOWN |
| VERIFY SCALES | 0 1" BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY |
| PROJECT NUMBER | 62084001 |
| SHEET CODE: | C-03 |
| SHEET NUMBER: | XX OF XXX |




PLAN
SCALE: 1" = 10'

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DOCUMENT NUMBER: XXXX-X-0000-0000000.00

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| | |
|---|---|
| DATE | APR 2020 |
| DESIGN | J. LO |
| DRAWN | J. CORDOVA |
| CHECKED | R. NARSIM |

ENGINEERING CERTIFICATION

PROJECT ENGINEER DATE

SANTA CLARA VALLEY WATER DISTRICT

Valley Water

PROJECT NAME AND SHEET DESCRIPTION:

# CALABAZAS CREEK REHABILITATION PROJECT

PLAN
STA 19+00 TO STA 22+00

SCALE: AS SHOWN

VERIFY SCALES
0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

PROJECT NUMBER: 62084001

SHEET CODE: C-04

SHEET NUMBER: XX OF XXX

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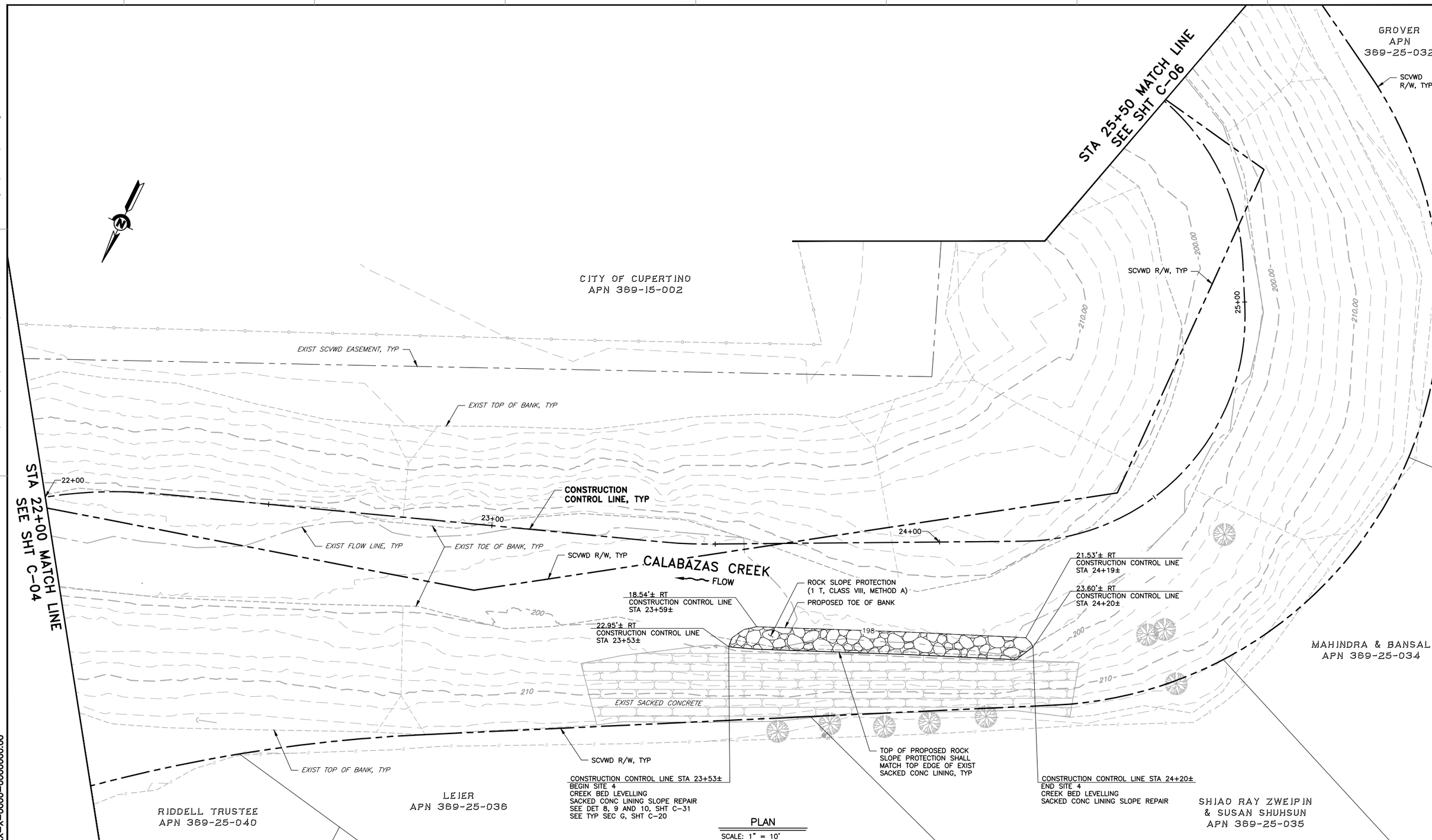


PLAN
SCALE: 1" = 10'

DOCUMENT NUMBER: XXXX-X-0000-0000000.00

| REV | DESCRIPTION | DATE | APPR |
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| DRAWN J. CORDOVA | |
| CHECKED R. NARSIM | PROJECT ENGINEER DATE |

SANTA CLARA VALLEY WATER DISTRICT

Valley Water

PROJECT NAME AND SHEET DESCRIPTION:

# CALABAZAS CREEK REHABILITATION PROJECT

PLAN
STA 22+00 TO STA 25+50

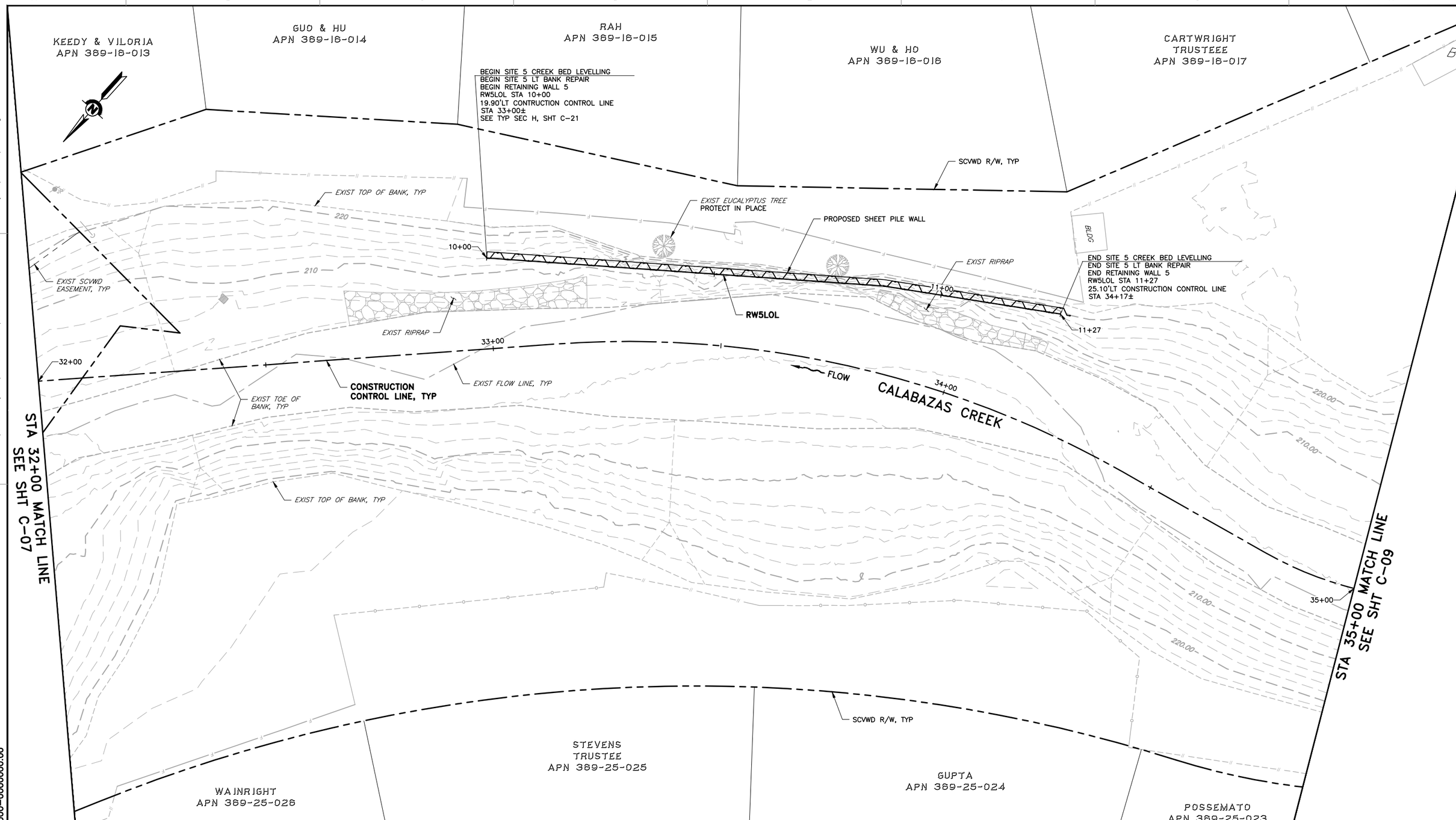
SCALE: AS SHOWN

VERIFY SCALES
0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

PROJECT NUMBER: 62084001

SHEET CODE: C-05

SHEET NUMBER: XX OF XXX




PLAN

SCALE: 1" = 10'

| REV | DESCRIPTION | DATE | APPR |
|---|---|---|---|
| | | | |

REFERENCE INFORMATION AND NOTES

1. NOT ALL TREES SHOWN. ONLY TREES NEAR PROPOSED WORK ARE SHOWN AND ARE FOR INFORMATIONAL PURPOSE ONLY. SEE SHEET C-16 FOR TREE REMOVAL TABLES.

| | |
|---|---|
| DATE | APR 2020 |
| DESIGN | J. LO |
| DRAWN | J. CORDOVA |
| CHECKED | R. NARSIM |

ENGINEERING CERTIFICATION

PROJECT ENGINEER DATE

SANTA CLARA VALLEY WATER DISTRICT

Valley Water

PROJECT NAME AND SHEET DESCRIPTION:

# CALABAZAS CREEK REHABILITATION PROJECT

PLAN
STA 32+00 TO STA 35+00

SCALE: AS SHOWN

VERIFY SCALES
0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

PROJECT NUMBER: 62084001

SHEET CODE: C-08

SHEET NUMBER: XX OF XXX

DOCUMENT NUMBER: XXXX-X-0000-0000000.00

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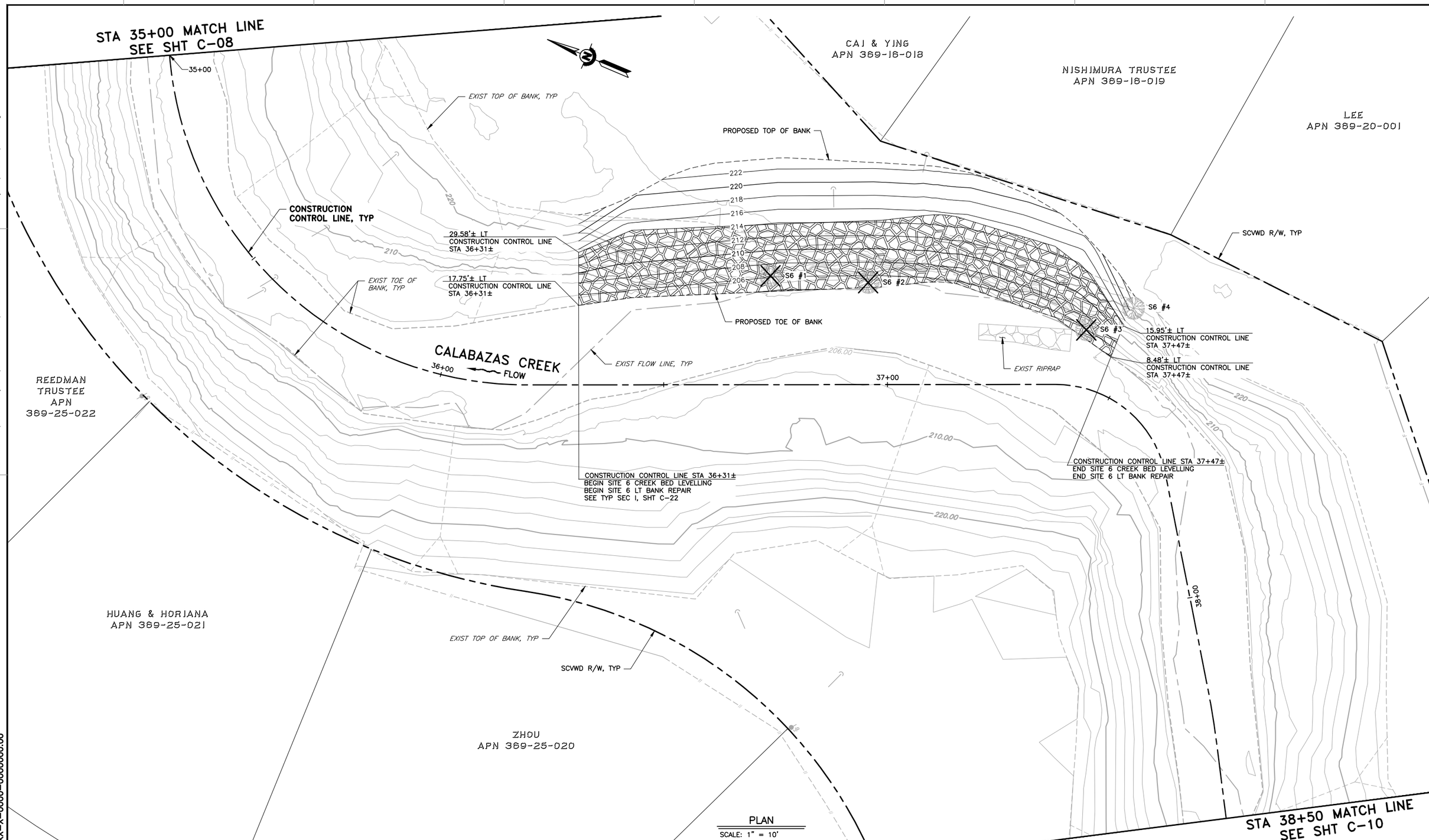


PLAN
SCALE: 1" = 10'

| REV | DESCRIPTION | DATE | APPR |
|---|---|---|---|
| | | | |

REFERENCE INFORMATION AND NOTES

1. NOT ALL TREES SHOWN. ONLY TREES NEAR PROPOSED WORK ARE SHOWN AND ARE FOR INFORMATIONAL PURPOSE ONLY. SEE SHEET C-16 FOR TREE REMOVAL TABLES.

| DATE | ENGINEERING CERTIFICATION |
|---|---|
| APR 2020 | |
| DESIGN J. LO | |
| DRAWN J. CORDOVA | |
| CHECKED R. NARSIM | PROJECT ENGINEER DATE |

SANTA CLARA VALLEY WATER DISTRICT

Valley Water

PROJECT NAME AND SHEET DESCRIPTION:

# CALABAZAS CREEK REHABILITATION PROJECT

PLAN
STA 35+00 TO STA 38+50

| SCALE | PROJECT NUMBER |
|---|---|
| AS SHOWN | 62084001 |
| VERIFY SCALES 0 1" BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY | SHEET CODE: C-09 |
| | SHEET NUMBER: XX OF XXX |

DOCUMENT NUMBER: XXXX-X-0000-0000000.00

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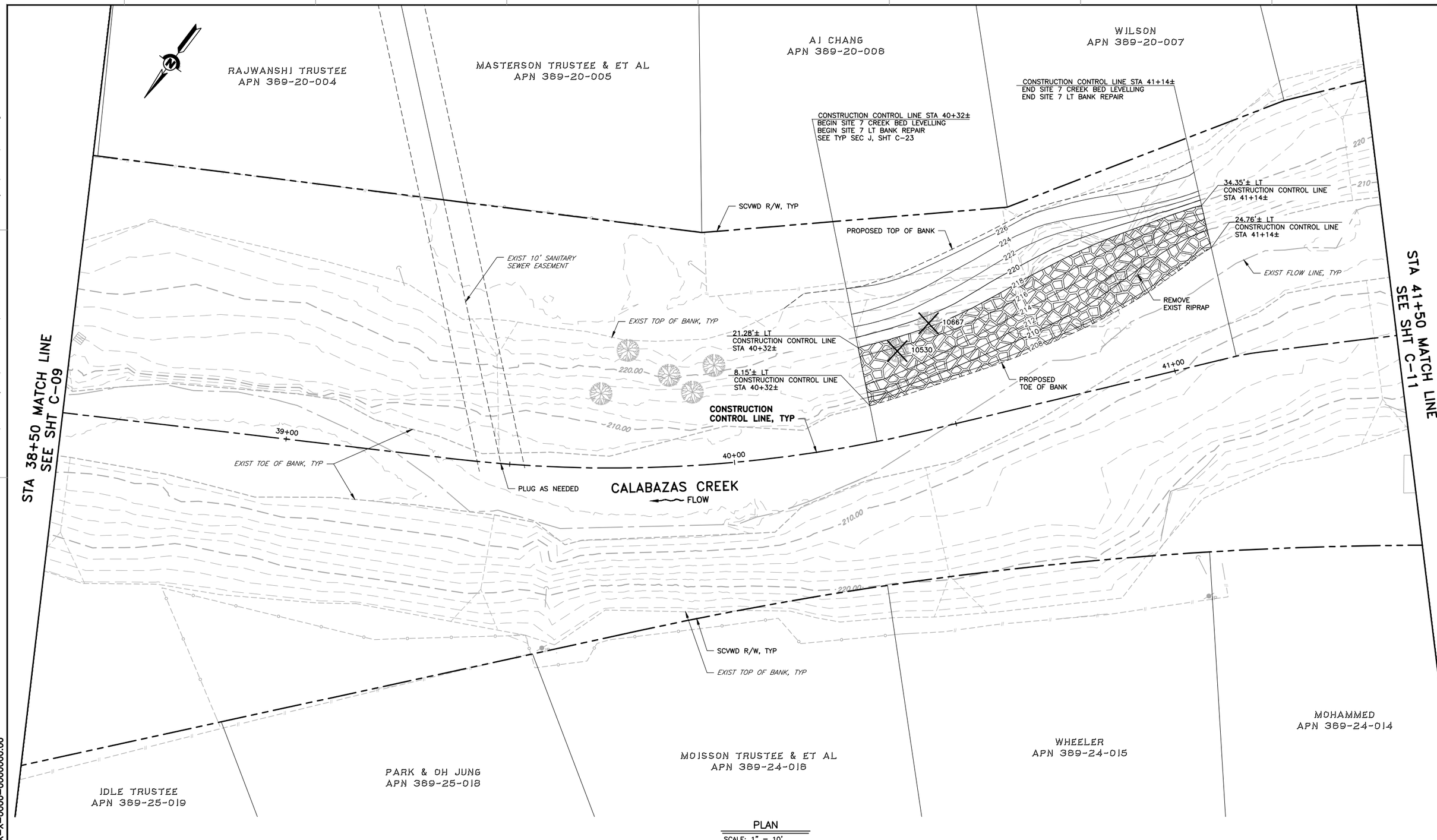


PLAN

SCALE: 1" = 10'

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DOCUMENT NUMBER: XXXX-X-0000-0000000.00

| REV | DESCRIPTION | DATE | APPR |
|---|---|---|---|
| | | | |

REFERENCE INFORMATION AND NOTES

1. NOT ALL TREES SHOWN. ONLY TREES NEAR PROPOSED WORK ARE SHOWN AND ARE FOR INFORMATIONAL PURPOSE ONLY. SEE SHEET C-16 FOR TREE REMOVAL TABLES.

| DATE | ENGINEERING CERTIFICATION |
|---|---|
| APR 2020 | |
| DESIGN J. LO | |
| DRAWN J. FORD | |
| CHECKED R. NARSIM | PROJECT ENGINEER DATE |

SANTA CLARA VALLEY WATER DISTRICT

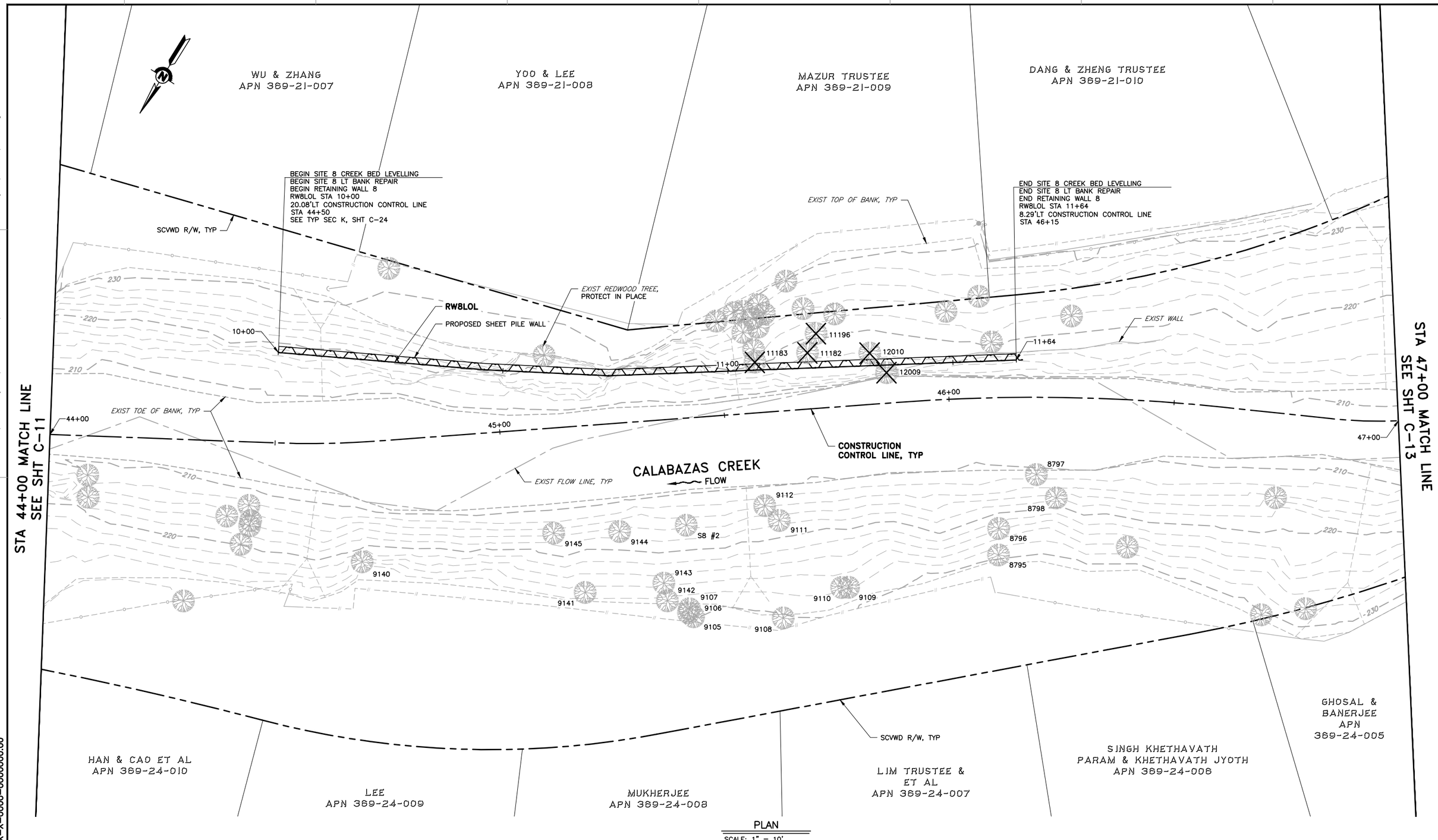
Valley Water

PROJECT NAME AND SHEET DESCRIPTION:

# CALABAZAS CREEK REHABILITATION PROJECT

PLAN
STA 38+50 TO STA 41+50

| SCALE | PROJECT NUMBER |
|---|---|
| AS SHOWN | 62084001 |
| VERIFY SCALES 0 1" BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY | SHEET CODE: C-10 SHEET NUMBER: XX OF XXX |

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DOCUMENT NUMBER: XXXX-X-0000-0000000.00

| REV | DESCRIPTION | DATE | APPR |
|---|---|---|---|
| | | | |

REFERENCE INFORMATION AND NOTES

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| DATE | ENGINEERING CERTIFICATION |
|---|---|
| APR 2020 | |
| DESIGN | |
| J. LO | |
| DRAWN | |
| J. FORD | |
| CHECKED | |
| R. NARSIM | PROJECT ENGINEER DATE |

SANTA CLARA VALLEY WATER DISTRICT

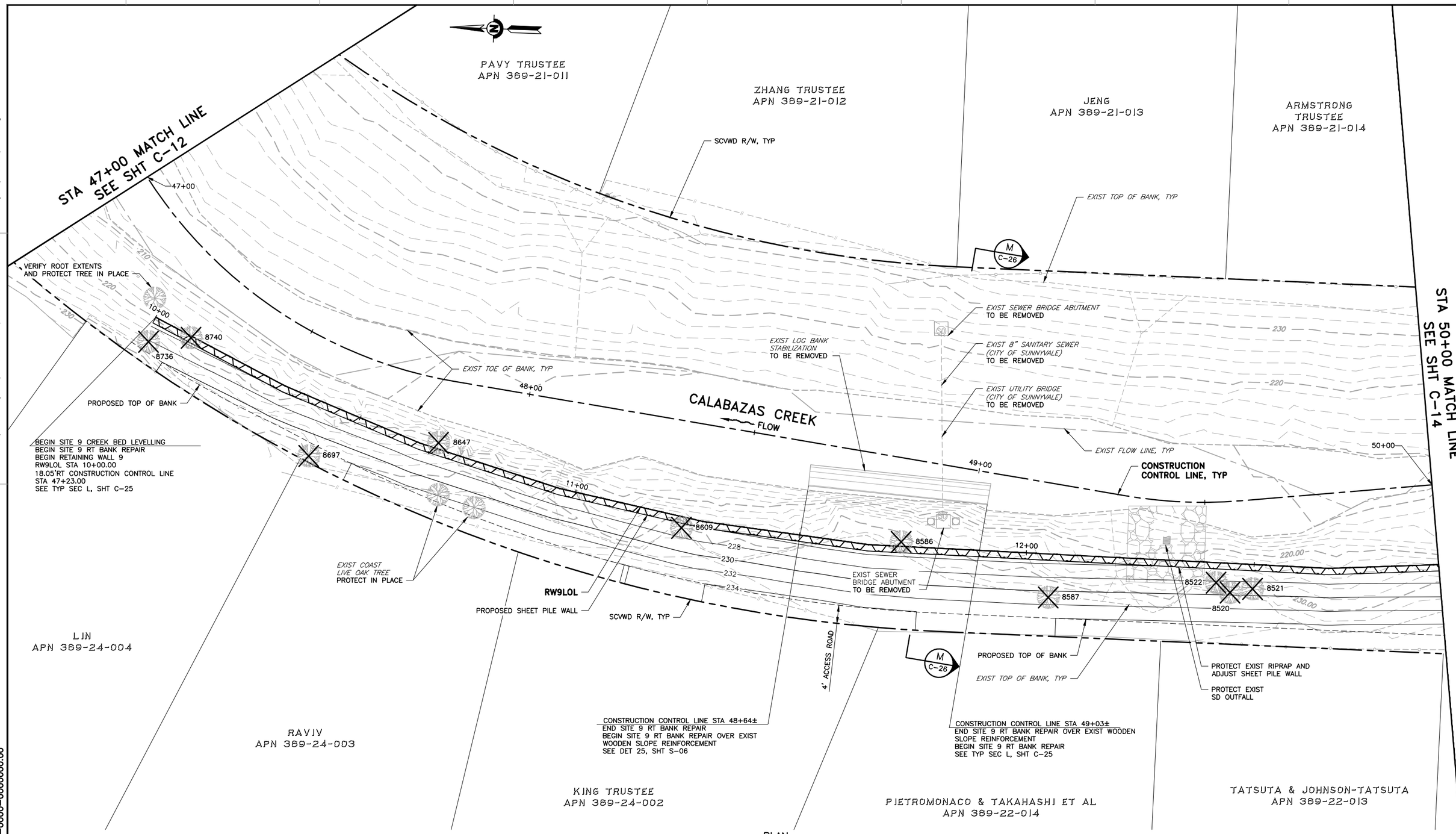
Valley Water

PROJECT NAME AND SHEET DESCRIPTION:

# CALABAZAS CREEK REHABILITATION PROJECT

PLAN
STA 44+00 TO STA 47+00

| SCALE | PROJECT NUMBER |
|---|---|
| AS SHOWN | 62084001 |
| VERIFY SCALES | SHEET CODE: |
| 0 1" BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY | C-12 |
| | SHEET NUMBER: XX OF XXX |




PLAN

SCALE: 1" = 10'

USERNAME: Jennford 5/4/2020 9:01 AM
FILENAME: K:\Active Projects\MP-62084001\Calabazas Creek Rehabilitation Project\SHEETS\C-13.dwg

DOCUMENT NUMBER: XXXX-X-0000-0000000.00

| REV | DESCRIPTION | DATE | APPR |
|---|---|---|---|
| | | | |

REFERENCE INFORMATION AND NOTES

1. NOT ALL TREES SHOWN. ONLY TREES NEAR PROPOSED WORK ARE SHOWN AND ARE FOR INFORMATIONAL PURPOSE ONLY. SEE SHEET C-16 FOR TREE REMOVAL TABLES.

| DATE | ENGINEERING CERTIFICATION |
|---|---|
| APR 2020 | |
| DESIGN J. LO | |
| DRAWN J. FORD | |
| CHECKED R. NARSIM | PROJECT ENGINEER DATE |

SANTA CLARA VALLEY WATER DISTRICT

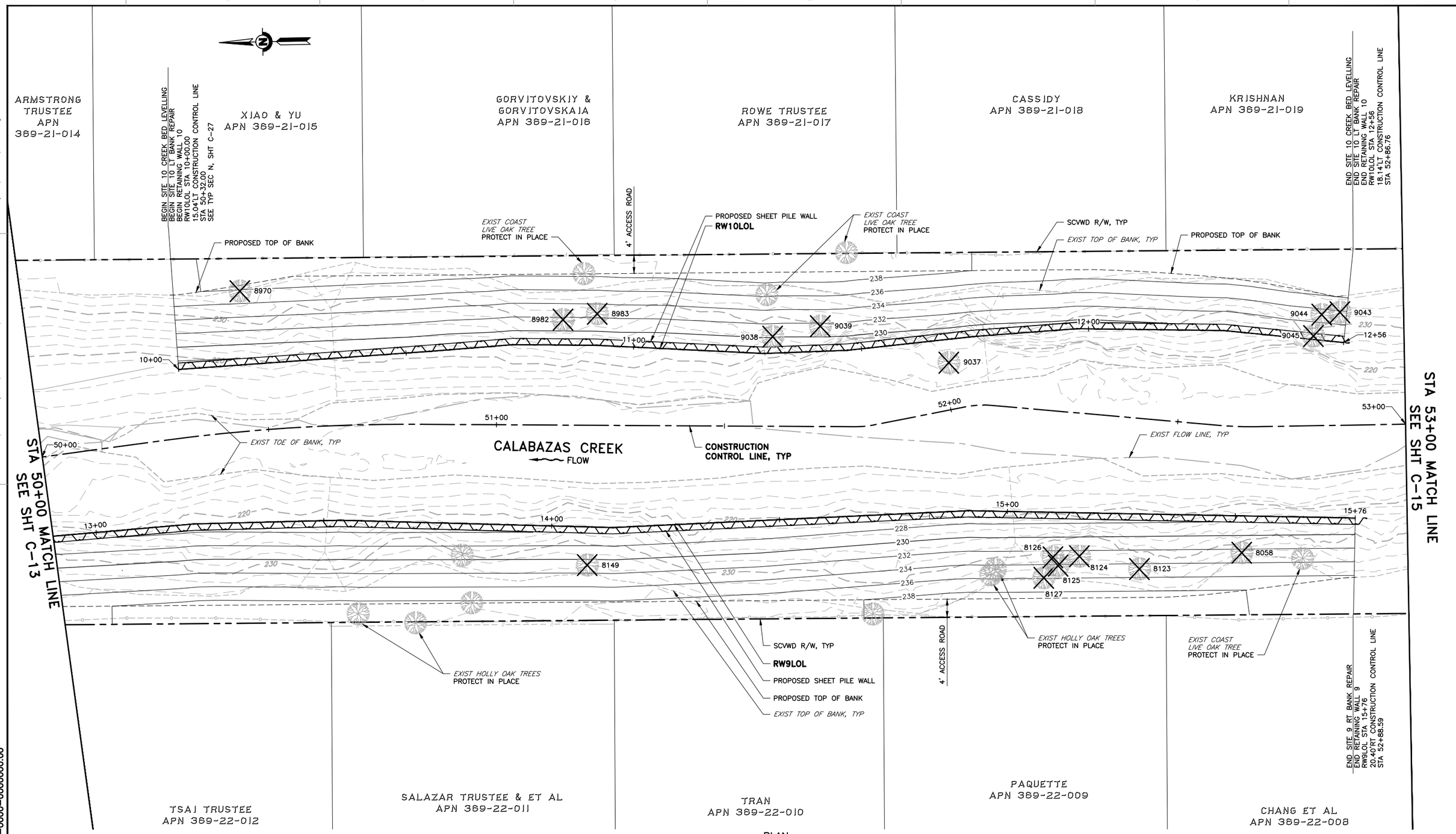
Valley Water

PROJECT NAME AND SHEET DESCRIPTION:

# CALABAZAS CREEK REHABILITATION PROJECT

PLAN
STA 47+00 TO STA 50+00

| SCALE | PROJECT NUMBER |
|---|---|
| AS SHOWN | 62084001 |
| VERIFY SCALES 0 1" BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY | SHEET CODE: C-13 SHEET NUMBER: XX OF XXX |




PLAN

SCALE: 1" = 10'

USERNAME: Jennford 4/29/2020 8:47 AM
FILENAME: K:\Active Projects\MP-62084001\Calabazas Creek Rehabilitation Project\SHEETS\C-14.dwg

DOCUMENT NUMBER: XXXX-X-0000-0000000.00

| REV | DESCRIPTION | DATE | APPR |
|---|---|---|---|
| | | | |

REFERENCE INFORMATION AND NOTES

1. NOT ALL TREES SHOWN. ONLY TREES NEAR PROPOSED WORK ARE SHOWN AND ARE FOR INFORMATIONAL PURPOSE ONLY. SEE SHEET C-16 FOR TREE REMOVAL TABLES.

| | |
|---|---|
| DATE | APR 2020 |
| DESIGN | J. LO |
| DRAWN | J. FORD |
| CHECKED | R. NARSIM |

ENGINEERING CERTIFICATION

PROJECT ENGINEER DATE

SANTA CLARA VALLEY WATER DISTRICT

Valley Water

PROJECT NAME AND SHEET DESCRIPTION:

# CALABAZAS CREEK REHABILITATION PROJECT

PLAN
STA 50+00 TO STA 53+00

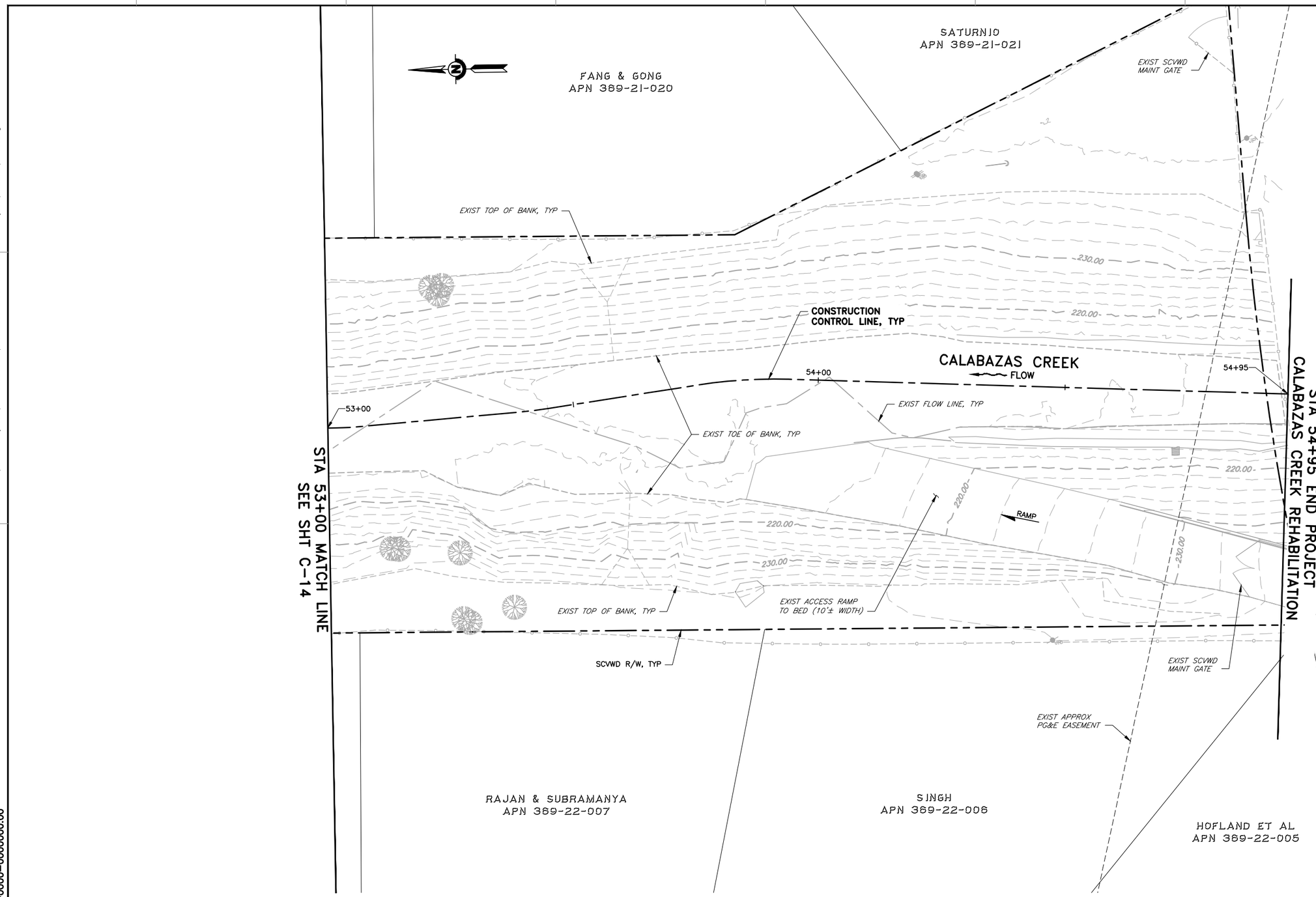
SCALE: AS SHOWN

VERIFY SCALES: 0 — 1"
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

PROJECT NUMBER: 62084001

SHEET CODE: C-14

SHEET NUMBER: XX OF XXX




PLAN

SCALE: 1" = 10'

| REV | DESCRIPTION | DATE | APPR |
|---|---|---|---|
| | | | |

REFERENCE INFORMATION AND NOTES

1. NOT ALL TREES SHOWN. ONLY TREES NEAR PROPOSED WORK ARE SHOWN AND ARE FOR INFORMATIONAL PURPOSE ONLY. SEE SHEET C-16 FOR TREE REMOVAL TABLES.

| DATE | ENGINEERING CERTIFICATION |
|---|---|
| APR 2020 | |
| DESIGN J. LO | |
| DRAWN J. FORD | |
| CHECKED R. NARSIM | PROJECT ENGINEER DATE |

SANTA CLARA VALLEY WATER DISTRICT

Valley Water

PROJECT NAME AND SHEET DESCRIPTION:

# CALABAZAS CREEK REHABILITATION PROJECT

PLAN
STA 53+00 TO STA 54+95

| SCALE | PROJECT NUMBER |
|---|---|
| AS SHOWN | 62084001 |
| VERIFY SCALES 0 1" BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY | SHEET CODE: C-15 |
| | SHEET NUMBER: XX OF XXX |

DOCUMENT NUMBER: XXXX-X-0000-0000000.00

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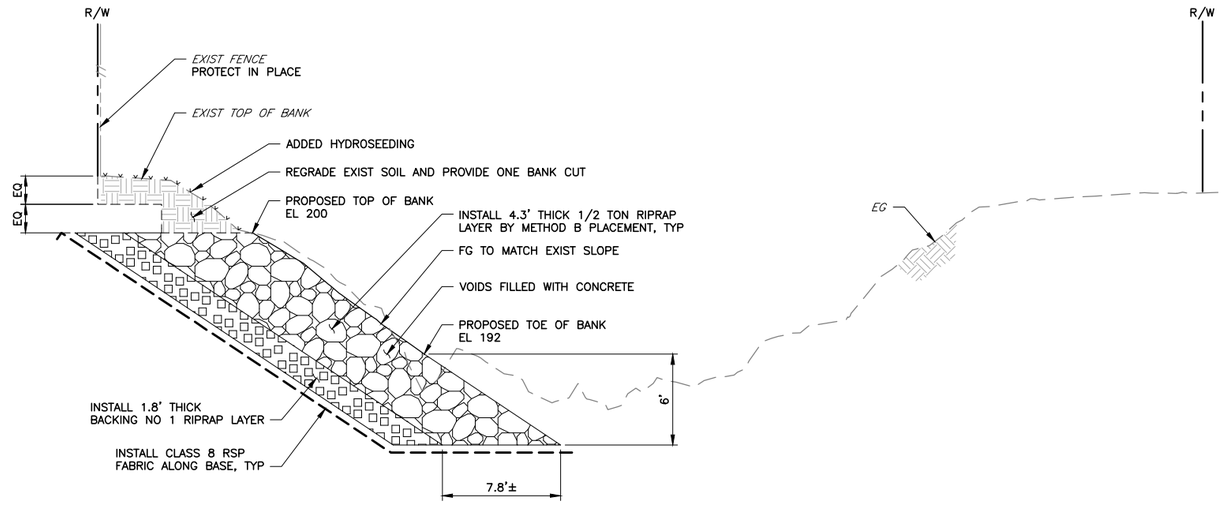
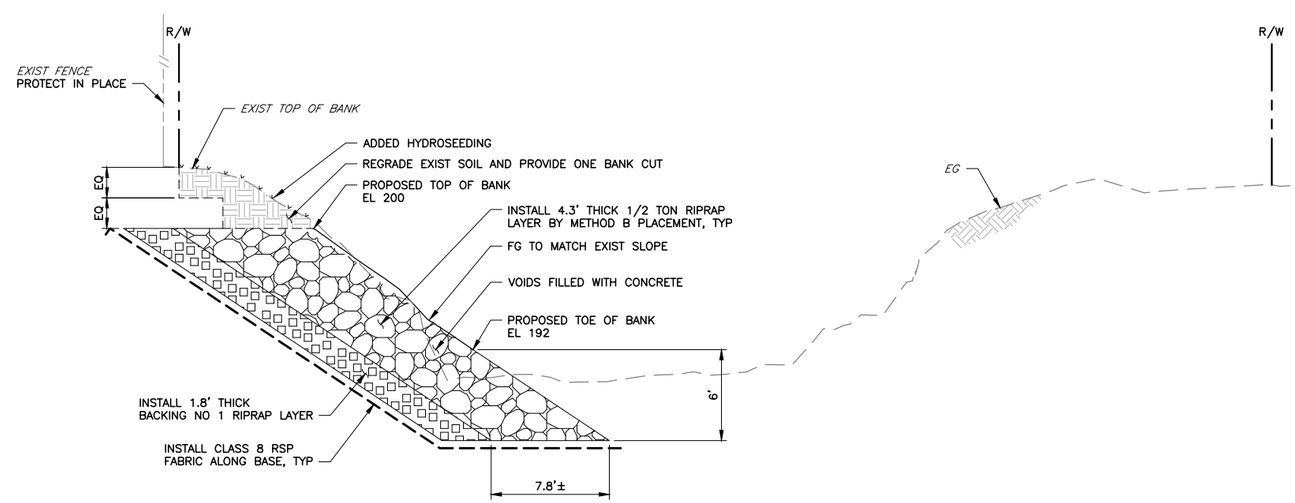



**TYPICAL SECTION** (A / C-01) **SITE 1 CONSTRUCTION CONTROL LINE**
**STA 10+25± TO STA 10+50±**
SCALE: 1" = 5'




**TYPICAL SECTION** (B / C-01) **SITE 1 CONSTRUCTION CONTROL LINE**
**STA 10+50± TO STA 10+60±**
SCALE: 1" = 5'

NOTES:

1. ALL FILLS SHALL BE CONSTRUCTED IN 6" TO 8" LIFTS AND COMPACTED TO A MINIMUM 95% RELATIVE COMPACTION. SLOPES TO RECEIVE FILLS SHALL BE STRIPPED AND BENCHED PRIOR TO RECEIVING FILL, MAXIMUM HEIGHT IS 2' HIGH AT 1H:1V.
2. ALL TREES WITHIN THE PROJECT LIMITS ARE TO REMAIN, EXCEPT INDICATED ON SITE PLAN.

LEGEND:

- 1% FLOOD ELEVATION
- NEW GROUNDWORK CUTLINE
- NEW SURFACE
- GEOTEXTILE FABRIC
- TOPSOIL
- RIPRAP
- NEW FILL
- BACKING NO. 1

| REV | DESCRIPTION | DATE | APPR | REFERENCE INFORMATION AND NOTES |
|---|---|---|---|---|
| | | | | |

DATE: APR 2020
DESIGN: J. LO
DRAWN: J. FORD
CHECKED: R. NARSIM

ENGINEERING CERTIFICATION
PROJECT ENGINEER DATE

SANTA CLARA VALLEY WATER DISTRICT
Valley Water

PROJECT NAME AND SHEET DESCRIPTION:
# CALABAZAS CREEK REHABILITATION PROJECT
TYPICAL SECTIONS

SCALE: AS SHOWN
VERIFY SCALES: 0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

PROJECT NUMBER: 62084001
SHEET CODE: C-17
SHEET NUMBER: XX OF XXX

USERNAME: Jennford 4/29/2020 8:51 AM
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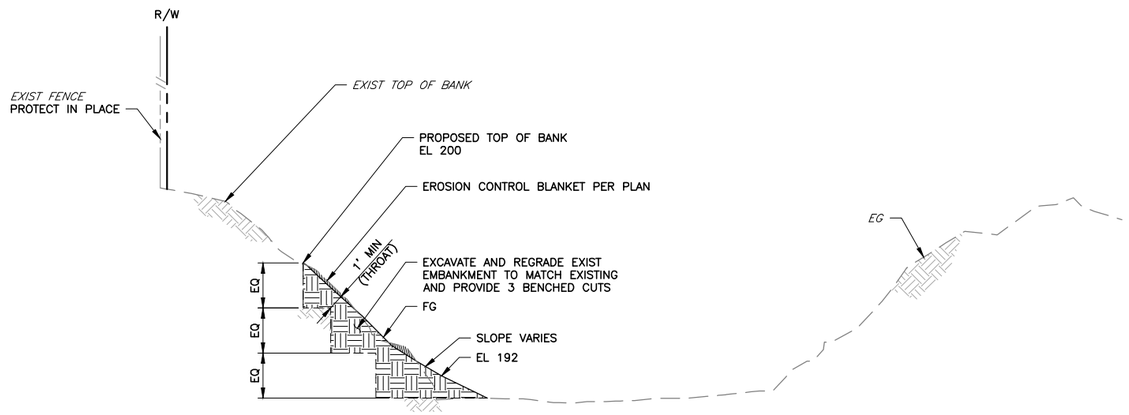


## TYPICAL SECTION C / C-01 SITE 1 CONSTRUCTION CONTROL LINE STA 10+60± TO STA 10+80±

SCALE: 1" = 5'

NOTES:

1. ALL FILLS SHALL BE CONSTRUCTED IN 6" TO 8" LIFTS AND COMPACTED TO A MINIMUM 95% RELATIVE COMPACTION. SLOPES TO RECEIVE FILLS SHALL BE STRIPPED AND BENCHED PRIOR TO RECEIVING FILL, MAXIMUM HEIGHT IS 2' HIGH AT 1H:1V.
2. ALL TREES WITHIN THE PROJECT LIMITS ARE TO REMAIN, EXCEPT INDICATED ON SITE PLAN.

LEGEND:

- 1% FLOOD ELEVATION
- NEW GROUNDWORK CUTLINE
- NEW SURFACE
- GEOTEXTILE FABRIC
- TOPSOIL
- RIPRAP
- NEW FILL
- BACKING NO. 1

| REV | DESCRIPTION | DATE | APPR | REFERENCE INFORMATION AND NOTES |
|---|---|---|---|---|
| | | | | |

DATE: APR 2020
DESIGN: J. LO
DRAWN: J. FORD
CHECKED: R. NARSIM

ENGINEERING CERTIFICATION
PROJECT ENGINEER DATE

SANTA CLARA VALLEY WATER DISTRICT
Valley Water

PROJECT NAME AND SHEET DESCRIPTION:
CALABAZAS CREEK REHABILITATION PROJECT
TYPICAL SECTIONS

SCALE: AS SHOWN
VERIFY SCALES: 0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

PROJECT NUMBER: 62084001
SHEET CODE: C-18
SHEET NUMBER: XX OF XXX

USERNAME: JENNFORD 4/29/2020 8:53 AM
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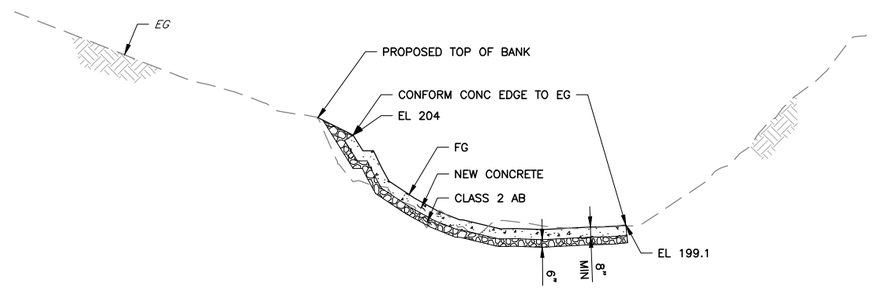
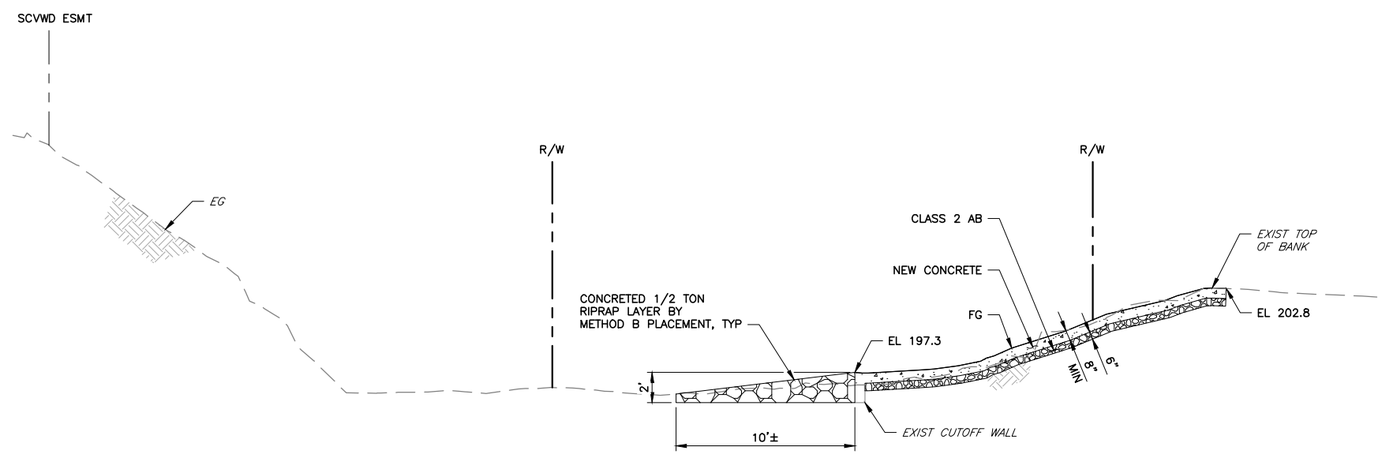
DOCUMENT NUMBER: XXXX-X-0000-000000.00




## TYPICAL SECTION D / C-03 REGNART CREEK
### STA 0+47±
SCALE: 1" = 5'




## TYPICAL SECTION E / C-03 CONSTRUCTION CONTROL LINE
### STA 18+45±
SCALE: 1" = 5'

NOTES:

1. ALL FILLS SHALL BE CONSTRUCTED IN 6" TO 8" LIFTS AND COMPACTED TO A MINIMUM 95% RELATIVE COMPACTION. SLOPES TO RECEIVE FILLS SHALL BE STRIPPED AND BENCHED PRIOR TO RECEIVING FILL, MAXIMUM HEIGHT IS 2' HIGH AT 1H:1V.
2. ALL TREES WITHIN THE PROJECT LIMITS ARE TO REMAIN, EXCEPT INDICATED ON SITE PLAN.

LEGEND:

- 1% FLOOD ELEVATION
- NEW GROUNDWORK CUTLINE
- NEW SURFACE
- GEOTEXTILE FABRIC
- TOPSOIL
- RIPRAP
- NEW FILL
- BACKING NO. 1

| REV | DESCRIPTION | DATE | APPR | REFERENCE INFORMATION AND NOTES |
|---|---|---|---|---|
| | | | | |

DATE: APR 2020
DESIGN: J. LO
DRAWN: J. FORD
CHECKED: R. NARSIM

ENGINEERING CERTIFICATION
PROJECT ENGINEER DATE

SANTA CLARA VALLEY WATER DISTRICT
Valley Water

PROJECT NAME AND SHEET DESCRIPTION:
# CALABAZAS CREEK REHABILITATION PROJECT
TYPICAL SECTIONS

SCALE: AS SHOWN
VERIFY SCALES: 0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

PROJECT NUMBER: 62084001
SHEET CODE: C-19
SHEET NUMBER: XX OF XXX

USERNAME: JENNFORD 4/29/2020 8:55 AM
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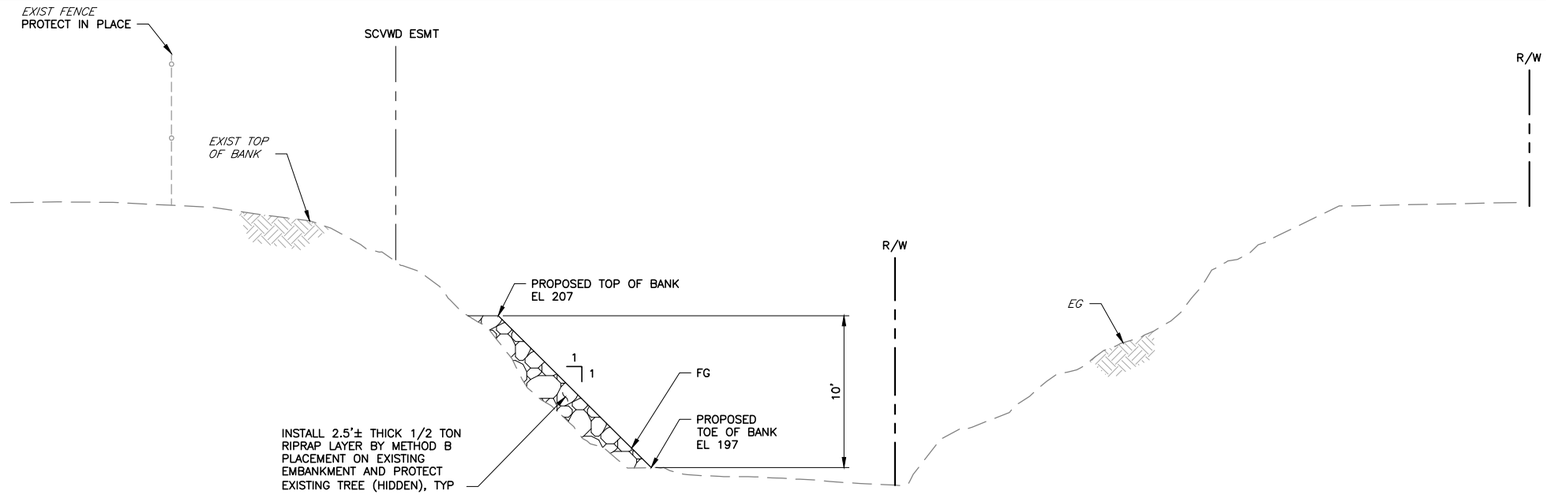
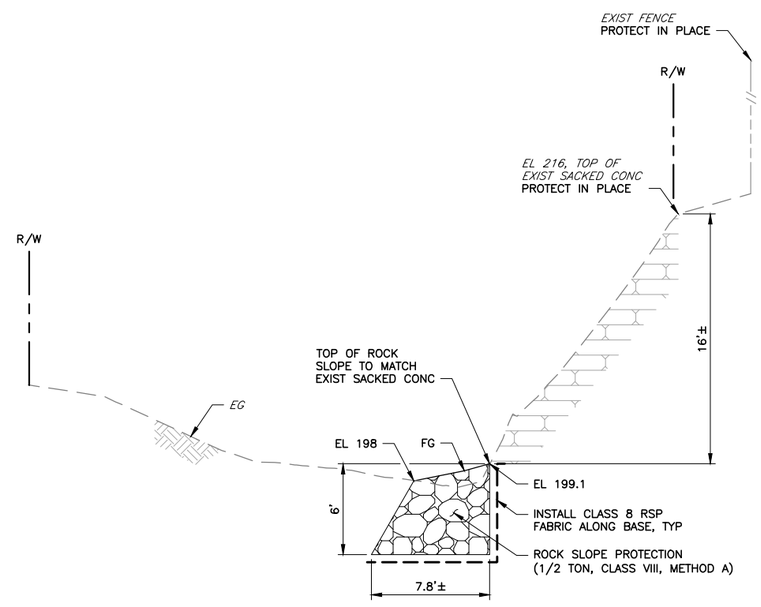
DOCUMENT NUMBER: XXXX-X-0000-0000000.00




## TYPICAL SECTION F / C-04 SITE 3 CONSTRUCTION CONTROL LINE
## STA 19+57± TO STA 19+96±

SCALE: 1" = 5'




## TYPICAL SECTION G / C-05 SITE 4 CONSTRUCTION CONTROL LINE
## STA 23+53± TO STA 24+20±

SCALE: 1" = 5'

NOTES:

1. ALL FILLS SHALL BE CONSTRUCTED IN 6" TO 8" LIFTS AND COMPACTED TO A MINIMUM 95% RELATIVE COMPACTION. SLOPES TO RECEIVE FILLS SHALL BE STRIPPED AND BENCHED PRIOR TO RECEIVING FILL, MAXIMUM HEIGHT IS 2' HIGH AT 1H:1V.
2. ALL TREES WITHIN THE PROJECT LIMITS ARE TO REMAIN, EXCEPT INDICATED ON SITE PLAN.

LEGEND:

- 1% FLOOD ELEVATION
- NEW GROUNDWORK CUTLINE
- NEW SURFACE
- GEOTEXTILE FABRIC
- TOPSOIL
- RIPRAP
- NEW FILL
- BACKING NO. 1

| REV | DESCRIPTION | DATE | APPR | REFERENCE INFORMATION AND NOTES |
|---|---|---|---|---|
| | | | | |

| | |
|---|---|
| DATE | APR 2020 |
| DESIGN | J. LO |
| DRAWN | J. FORD |
| CHECKED | R. NARSIM |

ENGINEERING CERTIFICATION

PROJECT ENGINEER DATE

SANTA CLARA VALLEY WATER DISTRICT

Valley Water

PROJECT NAME AND SHEET DESCRIPTION:

# CALABAZAS CREEK REHABILITATION PROJECT

TYPICAL SECTIONS

SCALE: AS SHOWN

VERIFY SCALES: 0 — 1"

BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

PROJECT NUMBER: 62084001

SHEET CODE: C-20

SHEET NUMBER: XX OF XXX

DOCUMENT NUMBER: XXXX-X-0000-0000000.00

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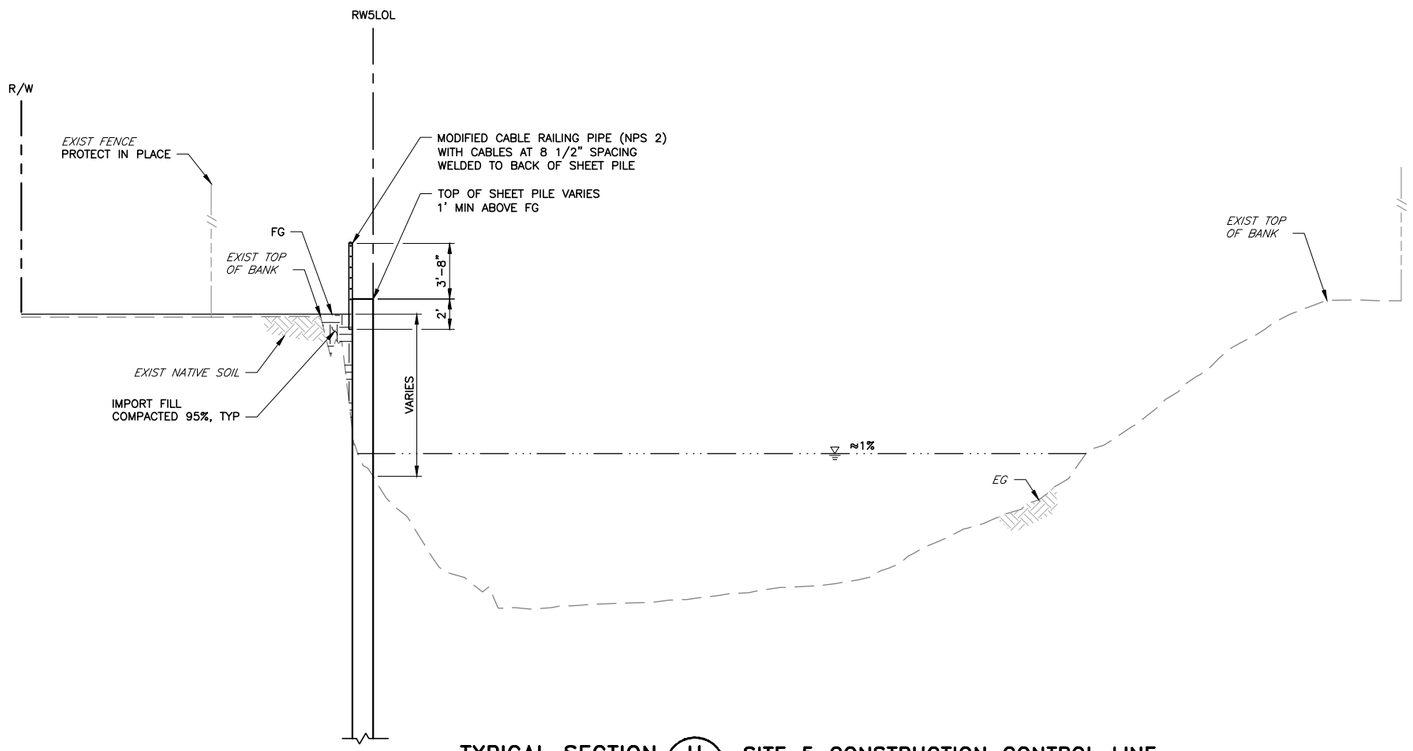


## TYPICAL SECTION (H / C-08) SITE 5 CONSTRUCTION CONTROL LINE
## STA 33+00± TO STA 34+17±

SCALE: 1" = 5'

NOTES:

1. ALL FILLS SHALL BE CONSTRUCTED IN 6" TO 8" LIFTS AND COMPACTED TO A MINIMUM 95% RELATIVE COMPACTION. SLOPES TO RECEIVE FILLS SHALL BE STRIPPED AND BENCHED PRIOR TO RECEIVING FILL, MAXIMUM HEIGHT IS 2' HIGH AT 1H:1V.
2. ALL TREES WITHIN THE PROJECT LIMITS ARE TO REMAIN, EXCEPT INDICATED ON SITE PLAN.

LEGEND:

- 1% FLOOD ELEVATION
- NEW GROUNDWORK CUTLINE
- NEW SURFACE
- GEOTEXTILE FABRIC
- TOPSOIL
- RIPRAP
- NEW FILL
- BACKING NO. 1

| REV | DESCRIPTION | DATE | APPR | REFERENCE INFORMATION AND NOTES |
|---|---|---|---|---|
| | | | | |

DATE: APR 2020
DESIGN: J. LO
DRAWN: J. FORD
CHECKED: R. NARSIM

ENGINEERING CERTIFICATION
PROJECT ENGINEER DATE

SANTA CLARA VALLEY WATER DISTRICT
Valley Water

PROJECT NAME AND SHEET DESCRIPTION:
# CALABAZAS CREEK REHABILITATION PROJECT
TYPICAL SECTIONS

SCALE: AS SHOWN
VERIFY SCALES: 0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

PROJECT NUMBER: 62084001
SHEET CODE: C-21
SHEET NUMBER: XX OF XXX

USERNAME: Jennford 4/30/2020 2:40 PM
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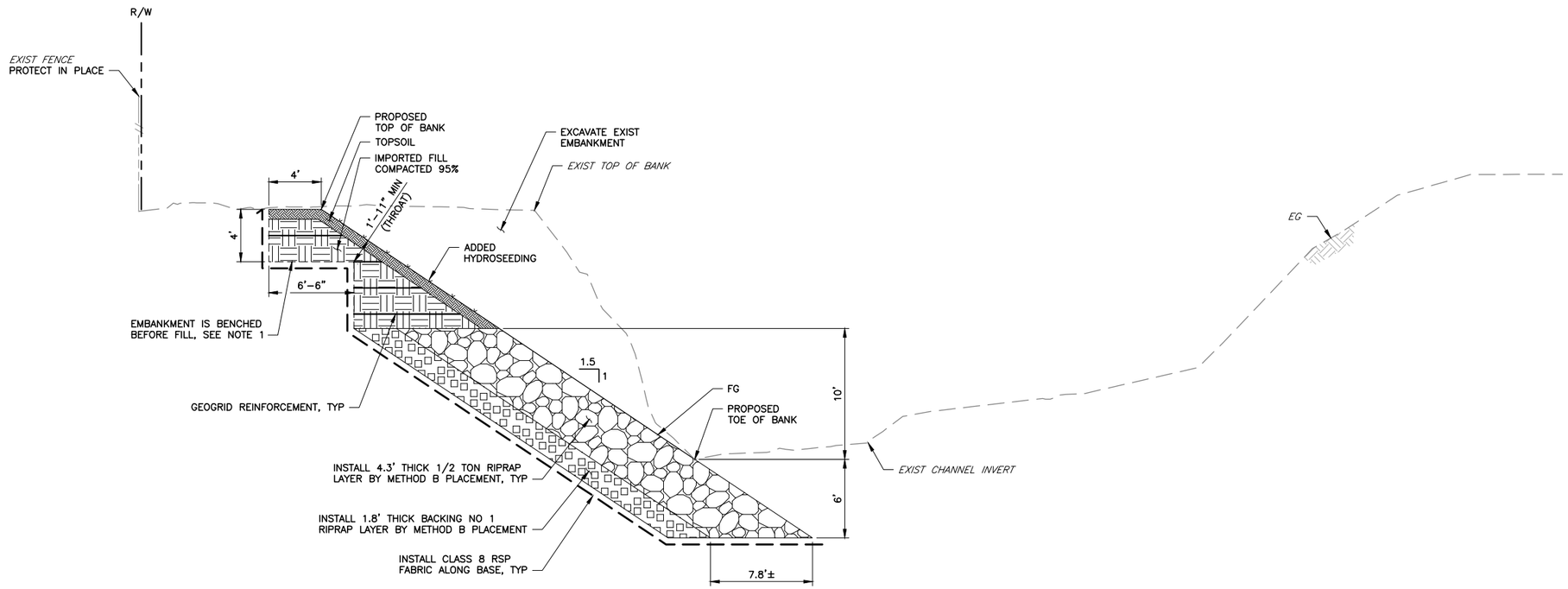
DOCUMENT NUMBER: XXXX-X-0000-000000.00




## TYPICAL SECTION (I / C-09) SITE 6 CONSTRUCTION CONTROL LINE
## STA 36+31± TO STA 37+47±

SCALE: 1" = 5'

NOTES:

1. ALL FILLS SHALL BE CONSTRUCTED IN 6" TO 8" LIFTS AND COMPACTED TO A MINIMUM 95% RELATIVE COMPACTION. SLOPES TO RECEIVE FILLS SHALL BE STRIPPED AND BENCHED PRIOR TO RECEIVING FILL, MAXIMUM HEIGHT IS 2' HIGH AT 1H:1V.
2. ALL TREES WITHIN THE PROJECT LIMITS ARE TO REMAIN, EXCEPT INDICATED ON SITE PLAN.

LEGEND:

- 1% FLOOD ELEVATION
- NEW GROUNDWORK CUTLINE
- NEW SURFACE
- GEOTEXTILE FABRIC
- TOPSOIL
- RIPRAP
- NEW FILL
- BACKING NO. 1

| REV | DESCRIPTION | DATE | APPR | REFERENCE INFORMATION AND NOTES |
|---|---|---|---|---|
| | | | | |

DATE: APR 2020
DESIGN: J. LO
DRAWN: J. FORD
CHECKED: R. NARSIM

ENGINEERING CERTIFICATION
PROJECT ENGINEER DATE

SANTA CLARA VALLEY WATER DISTRICT
Valley Water

PROJECT NAME AND SHEET DESCRIPTION:
# CALABAZAS CREEK REHABILITATION PROJECT
TYPICAL SECTIONS

SCALE: AS SHOWN
VERIFY SCALES: 0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

PROJECT NUMBER: 62084001
SHEET CODE: C-22
SHEET NUMBER: XX OF XXX

USERNAME: JENNFORD 4/29/2020 9:00 AM
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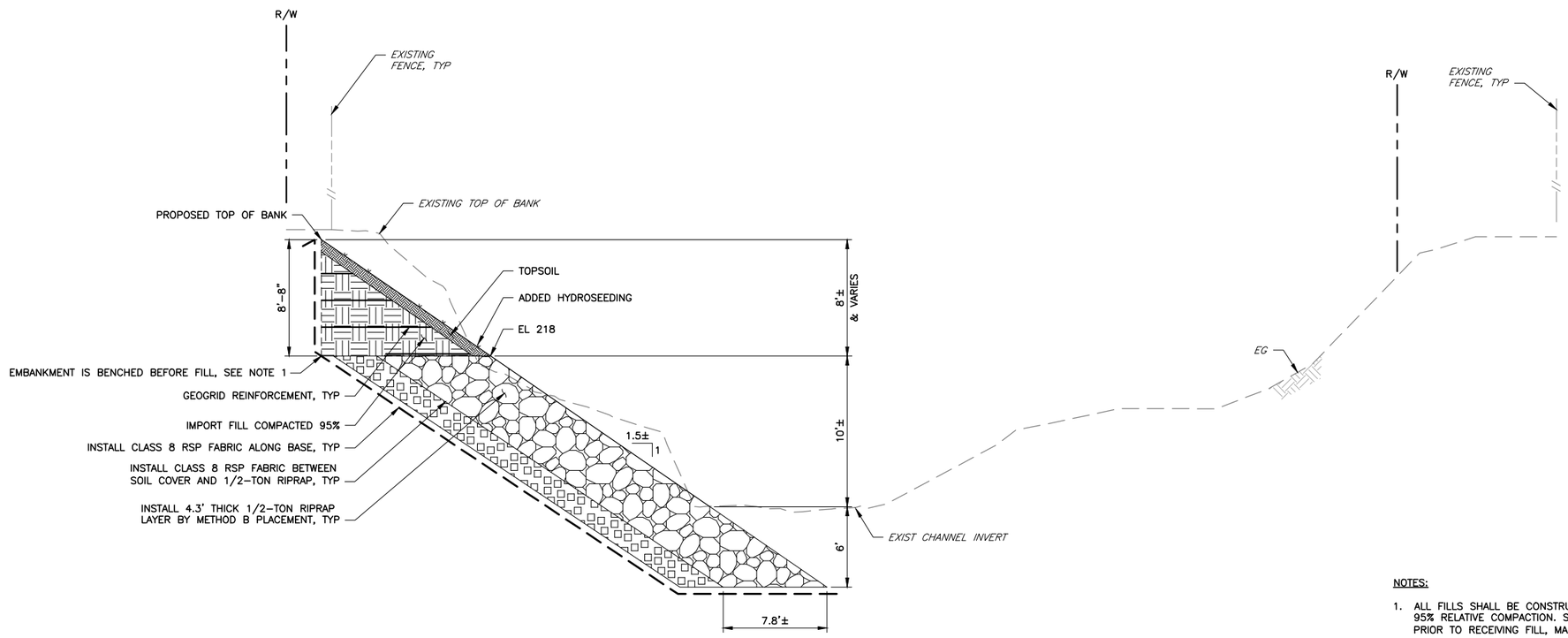
DOCUMENT NUMBER: XXXX-X-0000-000000.00




## TYPICAL SECTION (J / C-10) SITE 7 CONSTRUCTION CONTROL LINE STA 40+32± TO STA 41+14±

SCALE: 1" = 5'

NOTES:

1. ALL FILLS SHALL BE CONSTRUCTED IN 6" TO 8" LIFTS AND COMPACTED TO A MINIMUM 95% RELATIVE COMPACTION. SLOPES TO RECEIVE FILLS SHALL BE STRIPPED AND BENCHED PRIOR TO RECEIVING FILL, MAXIMUM HEIGHT IS 2' HIGH AT 1H:1V.
2. ALL TREES WITHIN THE PROJECT LIMITS ARE TO REMAIN, EXCEPT INDICATED ON SITE PLAN.

LEGEND:

- 1% FLOOD ELEVATION
- NEW GROUNDWORK CUTLINE
- NEW SURFACE
- GEOTEXTILE FABRIC
- TOPSOIL
- RIPRAP
- NEW FILL
- BACKING NO. 1

| REV | DESCRIPTION | DATE | APPR | REFERENCE INFORMATION AND NOTES |
|---|---|---|---|---|
| | | | | |

DATE: APR 2020
DESIGN: J. LO
DRAWN: J. FORD
CHECKED: R. NARSIM

ENGINEERING CERTIFICATION
PROJECT ENGINEER DATE

SANTA CLARA VALLEY WATER DISTRICT
Valley Water

PROJECT NAME AND SHEET DESCRIPTION:
# CALABAZAS CREEK REHABILITATION PROJECT
TYPICAL SECTION

SCALE: AS SHOWN
VERIFY SCALES: 0 1" BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

PROJECT NUMBER: 62084001
SHEET CODE: C-23
SHEET NUMBER: XX OF XXX

DOCUMENT NUMBER: XXXX-X-0000-0000000.00

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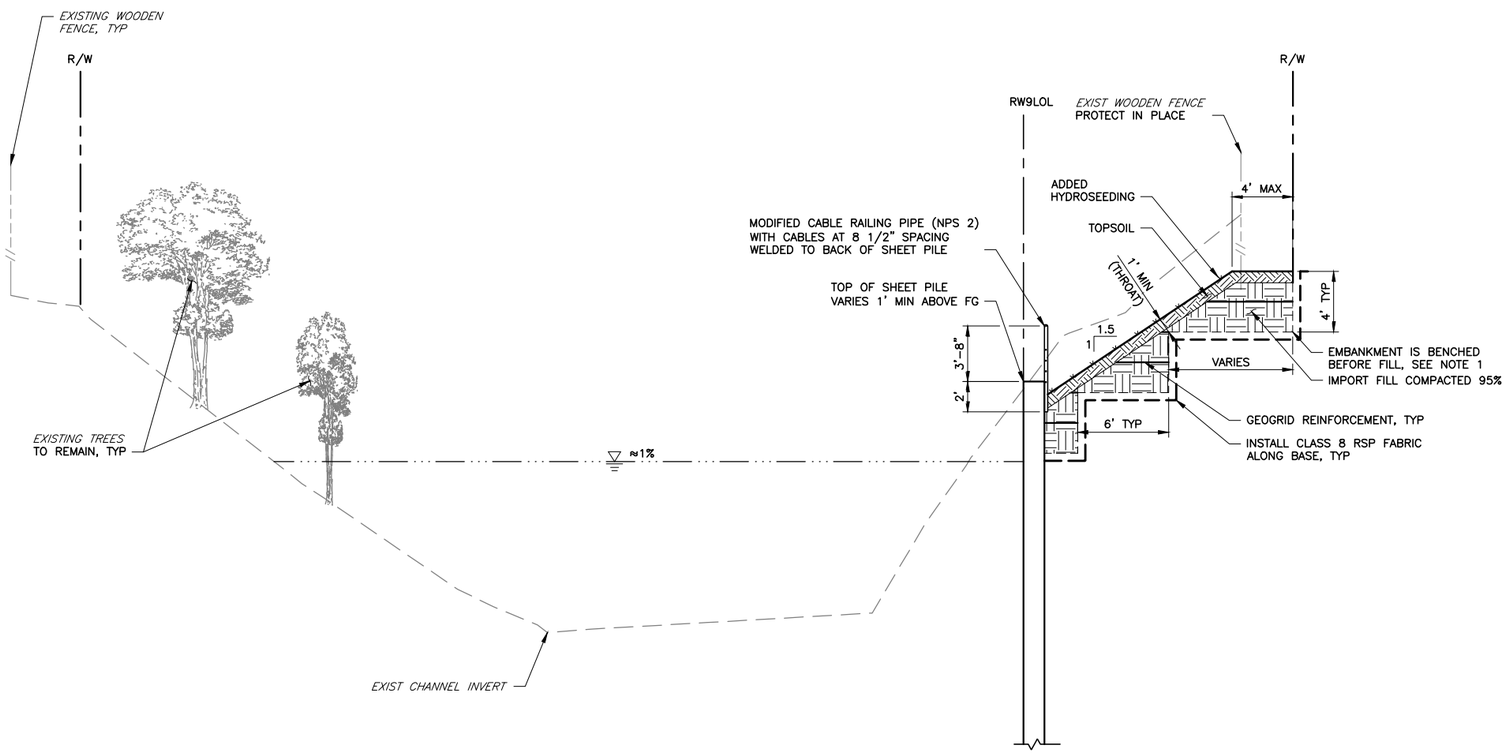


## TYPICAL SECTION L (C-13) C-14 — SITE 9 CONSTRUCTION CONTROL LINE STA 47+23± TO STA 50+32±

SCALE: 1" = 5'

NOTES:

1. ALL FILLS SHALL BE CONSTRUCTED IN 6" TO 8" LIFTS AND COMPACTED TO A MINIMUM 95% RELATIVE COMPACTION. SLOPES TO RECEIVE FILLS SHALL BE STRIPPED AND BENCHED PRIOR TO RECEIVING FILL, MAXIMUM HEIGHT IS 2' HIGH AT 1H:1V.
2. ALL TREES WITHIN THE PROJECT LIMITS ARE TO REMAIN, EXCEPT INDICATED ON SITE PLAN.

LEGEND:

- 1% FLOOD ELEVATION
- NEW GROUNDWORK CUTLINE
- NEW SURFACE
- GEOTEXTILE FABRIC
- TOPSOIL
- RIPRAP
- NEW FILL
- BACKING NO. 1

| REV | DESCRIPTION | DATE | APPR | REFERENCE INFORMATION AND NOTES |
|---|---|---|---|---|
| | | | | |

DATE: APR 2020
DESIGN: J. LO
DRAWN: J. FORD
CHECKED: R. NARSIM

ENGINEERING CERTIFICATION
PROJECT ENGINEER DATE

SANTA CLARA VALLEY WATER DISTRICT
Valley Water

PROJECT NAME AND SHEET DESCRIPTION:
# CALABAZAS CREEK REHABILITATION PROJECT
TYPICAL SECTION

SCALE: AS SHOWN
VERIFY SCALES: 0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

PROJECT NUMBER: 62084001
SHEET CODE: C-25
SHEET NUMBER: XX OF XXX

DOCUMENT NUMBER: XXXX-X-0000-0000000.00

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USERNAME: Stelkaro 4/29/2020 9:08 AM
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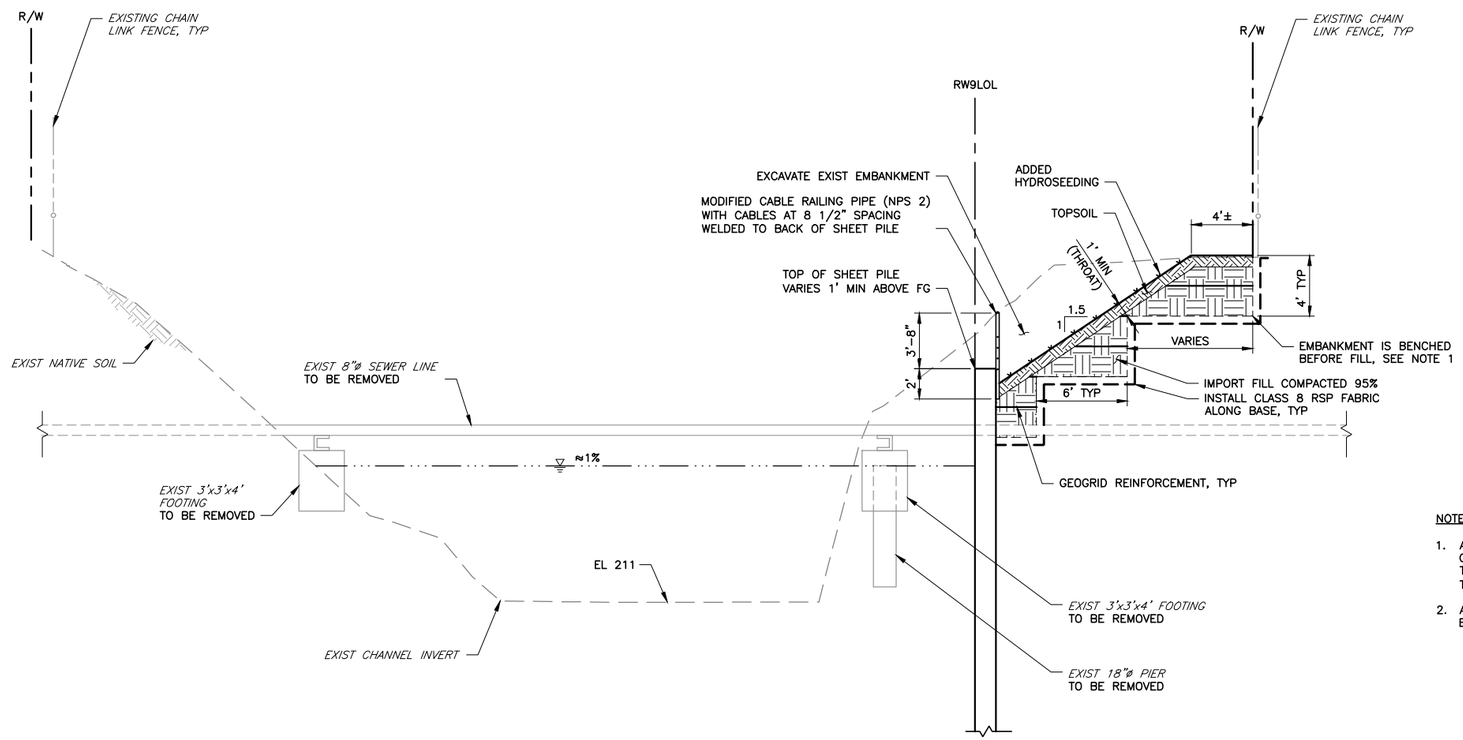



## TYPICAL SECTION (M / C-13) CONSTRUCTION CONTROL LINE

STA 48+85± TO STA 48+98±

SCALE: 1" = 5'

NOTES:

1. ALL FILLS SHALL BE CONSTRUCTED IN 6" TO 8" LIFTS AND COMPACTED TO A MINIMUM 95% RELATIVE COMPACTION. SLOPES TO RECEIVE FILLS SHALL BE STRIPPED AND BENCHED PRIOR TO RECEIVING FILL, MAXIMUM HEIGHT IS 2' HIGH AT 1H:1V.
2. ALL TREES WITHIN THE PROJECT LIMITS ARE TO REMAIN, EXCEPT INDICATED ON SITE PLAN.

LEGEND:

- 1% FLOOD ELEVATION
- NEW GROUNDWORK CUTLINE
- NEW SURFACE
- GEOTEXTILE FABRIC
- TOPSOIL
- RIPRAP
- NEW FILL
- BACKING NO. 1

| REV | DESCRIPTION | DATE | APPR | REFERENCE INFORMATION AND NOTES |
|---|---|---|---|---|
| | | | | |

DATE APR 2020
DESIGN J. LO
DRAWN J. FORD
CHECKED R. NARSIM

ENGINEERING CERTIFICATION
PROJECT ENGINEER DATE

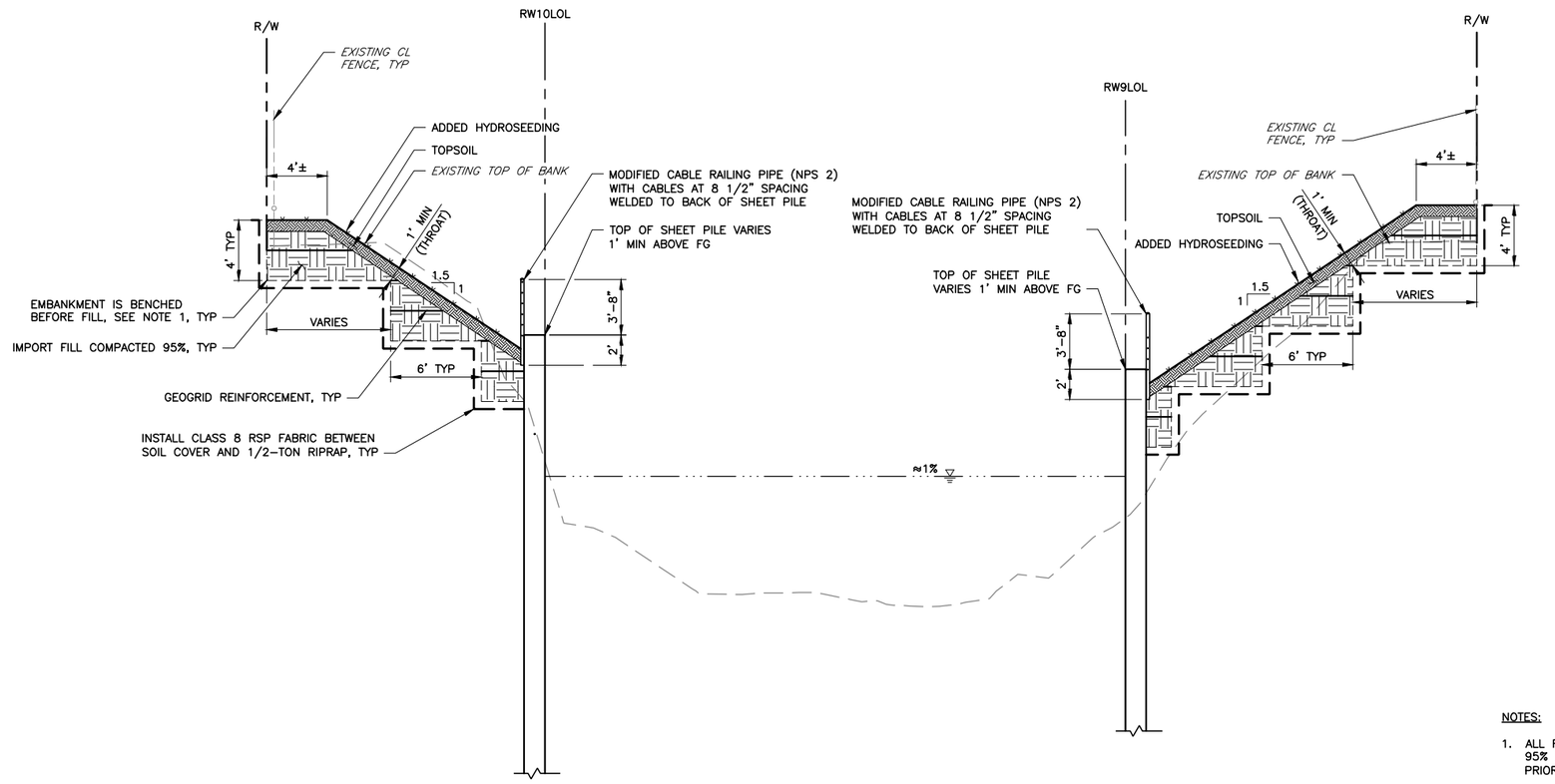
SANTA CLARA VALLEY WATER DISTRICT
Valley Water

PROJECT NAME AND SHEET DESCRIPTION:
CALABAZAS CREEK REHABILITATION PROJECT
TYPICAL SECTION

SCALE: AS SHOWN
VERIFY SCALES 0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

PROJECT NUMBER 62084001
SHEET CODE: C-26
SHEET NUMBER: XX OF XXX

DOCUMENT NUMBER: XXXX-X-0000-0000000.00




## TYPICAL SECTION (N / C-14) SITE 9C & 10 CONSTRUCTION CONTROL LINE STA 50+32± TO STA 52+86±

SCALE: 1" = 5'

NOTES:

1. ALL FILLS SHALL BE CONSTRUCTED IN 6" TO 8" LIFTS AND COMPACTED TO A MINIMUM 95% RELATIVE COMPACTION. SLOPES TO RECEIVE FILLS SHALL BE STRIPPED AND BENCHED PRIOR TO RECEIVING FILL, MAXIMUM HEIGHT IS 2' HIGH AT 1H:1V.
2. ALL TREES WITHIN THE PROJECT LIMITS ARE TO REMAIN, EXCEPT INDICATED ON SITE PLAN.

LEGEND:

- 1% FLOOD ELEVATION
- NEW GROUNDWORK CUTLINE
- NEW SURFACE
- GEOTEXTILE FABRIC
- TOPSOIL
- RIPRAP
- NEW FILL
- BACKING NO. 1

| REV | DESCRIPTION | DATE | APPR | REFERENCE INFORMATION AND NOTES |
|---|---|---|---|---|
| | | | | |

| | |
|---|---|
| DATE | APR 2020 |
| DESIGN | J. LO |
| DRAWN | J. FORD |
| CHECKED | R. NARSIM |

ENGINEERING CERTIFICATION

PROJECT ENGINEER DATE

SANTA CLARA VALLEY WATER DISTRICT

Valley Water

PROJECT NAME AND SHEET DESCRIPTION:

# CALABAZAS CREEK REHABILITATION PROJECT

TYPICAL SECTION

| SCALE | PROJECT NUMBER |
|---|---|
| AS SHOWN | 62084001 |
| VERIFY SCALES 0 1" BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY | SHEET CODE: C-27 |
| | SHEET NUMBER: XX OF XXX |

USERNAME: Stelkaro 4/29/2020 9:11 AM
FILENAME: K:\Active Projects\MP-62084001\Calabazas Creek Rehabilitation Project\SHEETS\C-27.dwg

DOCUMENT NUMBER: XXXX-X-0000-0000000.00

# Appendix B
California Emissions Estimator Model Data

# Calabazas Creek Bank Rehabilitation Project

**Santa Clara County, Annual**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| | 0.00 | | 0.00 | 0.00 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.2 | **Precipitation Freq (Days)** | 58 |
| **Climate Zone** | 5 | | | **Operational Year** | 2022 |
| **Utility Company** | Pacific Gas & Electric Company | | | | |
| **CO2 Intensity (lb/MWhr)** | 641.35 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Adjusted manually to fit project schedule.

Off-road Equipment - Based on construction details.

Off-road Equipment - Based on construction details.

Off-road Equipment - Based on construction details.

Off-road Equipment - Based on construction details.

Off-road Equipment - Based on construction details.

Off-road Equipment - Based on construction details.

Grading - Based on construction details.

Trips and VMT - Based on construction details.

Construction Off-road Equipment Mitigation -

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblConstructionPhase | NumDays | 0.00 | 22.00 |
| tblConstructionPhase | NumDays | 0.00 | 21.00 |
| tblConstructionPhase | NumDays | 0.00 | 22.00 |
| tblConstructionPhase | NumDays | 0.00 | 23.00 |
| tblConstructionPhase | NumDays | 0.00 | 86.00 |
| tblConstructionPhase | NumDays | 0.00 | 85.00 |
| tblConstructionPhase | PhaseEndDate | 4/14/2021 | 10/14/2021 |
| tblConstructionPhase | PhaseEndDate | 4/14/2021 | 5/13/2022 |
| tblConstructionPhase | PhaseEndDate | 4/14/2021 | 5/14/2021 |
| tblConstructionPhase | PhaseEndDate | 4/14/2021 | 10/15/2021 |
| tblConstructionPhase | PhaseEndDate | 4/14/2021 | 9/12/2022 |
| tblConstructionPhase | PhaseEndDate | 4/14/2021 | 9/10/2021 |
| tblConstructionPhase | PhaseStartDate | 4/15/2021 | 9/15/2021 |

| | | | |
|---|---|---|---|
| tblConstructionPhase | PhaseStartDate | 4/15/2021 | 4/15/2022 |
| tblConstructionPhase | PhaseStartDate | 4/15/2021 | 9/15/2021 |
| tblConstructionPhase | PhaseStartDate | 4/15/2021 | 5/15/2022 |
| tblConstructionPhase | PhaseStartDate | 4/15/2021 | 5/15/2021 |
| tblGrading | AcresOfGrading | 1.38 | 0.25 |
| tblGrading | AcresOfGrading | 1.31 | 0.25 |
| tblGrading | MaterialExported | 0.00 | 2,280.00 |
| tblGrading | MaterialExported | 0.00 | 2,280.00 |
| tblGrading | MaterialExported | 0.00 | 2,280.00 |
| tblGrading | MaterialExported | 0.00 | 2,280.00 |
| tblGrading | MaterialImported | 0.00 | 1,160.00 |
| tblGrading | MaterialImported | 0.00 | 1,160.00 |
| tblGrading | MaterialImported | 0.00 | 1,160.00 |
| tblGrading | MaterialImported | 0.00 | 1,160.00 |
| tblGrading | MaterialSiltContent | 6.90 | 4.30 |
| tblGrading | MaterialSiltContent | 6.90 | 4.30 |
| tblGrading | MaterialSiltContent | 6.90 | 4.30 |
| tblGrading | MaterialSiltContent | 6.90 | 4.30 |
| tblGrading | MeanVehicleSpeed | 7.10 | 40.00 |
| tblGrading | MeanVehicleSpeed | 7.10 | 40.00 |
| tblGrading | MeanVehicleSpeed | 7.10 | 40.00 |
| tblGrading | MeanVehicleSpeed | 7.10 | 40.00 |
| tblOffRoadEquipment | HorsePower | 402.00 | 78.00 |
| tblOffRoadEquipment | HorsePower | 78.00 | 9.00 |
| tblOffRoadEquipment | HorsePower | 78.00 | 81.00 |
| tblOffRoadEquipment | HorsePower | 402.00 | 81.00 |
| tblOffRoadEquipment | HorsePower | 78.00 | 231.00 |

| | | | |
|---|---|---|---|
| tblOffRoadEquipment | HorsePower | 203.00 | 89.00 |
| tblOffRoadEquipment | HorsePower | 97.00 | 187.00 |
| tblOffRoadEquipment | HorsePower | 247.00 | 130.00 |
| tblOffRoadEquipment | HorsePower | 231.00 | 80.00 |
| tblOffRoadEquipment | HorsePower | 81.00 | 247.00 |
| tblOffRoadEquipment | HorsePower | 168.00 | 247.00 |
| tblOffRoadEquipment | HorsePower | 84.00 | 97.00 |
| tblOffRoadEquipment | HorsePower | 402.00 | 97.00 |
| tblOffRoadEquipment | HorsePower | 168.00 | 97.00 |
| tblOffRoadEquipment | HorsePower | 221.00 | 97.00 |
| tblOffRoadEquipment | HorsePower | 9.00 | 97.00 |
| tblOffRoadEquipment | HorsePower | 78.00 | 81.00 |
| tblOffRoadEquipment | HorsePower | 97.00 | 81.00 |
| tblOffRoadEquipment | HorsePower | 97.00 | 187.00 |
| tblOffRoadEquipment | HorsePower | 402.00 | 187.00 |
| tblOffRoadEquipment | HorsePower | 158.00 | 187.00 |
| tblOffRoadEquipment | HorsePower | 402.00 | 187.00 |
| tblOffRoadEquipment | HorsePower | 158.00 | 247.00 |
| tblOffRoadEquipment | HorsePower | 172.00 | 97.00 |
| tblOffRoadEquipment | HorsePower | 158.00 | 402.00 |
| tblOffRoadEquipment | HorsePower | 85.00 | 221.00 |
| tblOffRoadEquipment | LoadFactor | 0.38 | 0.48 |
| tblOffRoadEquipment | LoadFactor | 0.48 | 0.56 |
| tblOffRoadEquipment | LoadFactor | 0.48 | 0.73 |
| tblOffRoadEquipment | LoadFactor | 0.38 | 0.73 |
| tblOffRoadEquipment | LoadFactor | 0.48 | 0.29 |
| tblOffRoadEquipment | LoadFactor | 0.36 | 0.20 |

| | | | |
|---|---|---|---|
| tblOffRoadEquipment | LoadFactor | 0.37 | 0.41 |
| tblOffRoadEquipment | LoadFactor | 0.40 | 0.42 |
| tblOffRoadEquipment | LoadFactor | 0.29 | 0.38 |
| tblOffRoadEquipment | LoadFactor | 0.73 | 0.40 |
| tblOffRoadEquipment | LoadFactor | 0.74 | 0.37 |
| tblOffRoadEquipment | LoadFactor | 0.38 | 0.37 |
| tblOffRoadEquipment | LoadFactor | 0.40 | 0.37 |
| tblOffRoadEquipment | LoadFactor | 0.50 | 0.37 |
| tblOffRoadEquipment | LoadFactor | 0.56 | 0.37 |
| tblOffRoadEquipment | LoadFactor | 0.48 | 0.73 |
| tblOffRoadEquipment | LoadFactor | 0.37 | 0.73 |
| tblOffRoadEquipment | LoadFactor | 0.37 | 0.41 |
| tblOffRoadEquipment | LoadFactor | 0.38 | 0.41 |
| tblOffRoadEquipment | LoadFactor | 0.38 | 0.41 |
| tblOffRoadEquipment | LoadFactor | 0.38 | 0.41 |
| tblOffRoadEquipment | LoadFactor | 0.38 | 0.40 |
| tblOffRoadEquipment | LoadFactor | 0.42 | 0.37 |
| tblOffRoadEquipment | LoadFactor | 0.38 | 0.38 |
| tblOffRoadEquipment | LoadFactor | 0.41 | 0.41 |
| tblOffRoadEquipment | LoadFactor | 0.38 | 0.38 |
| tblOffRoadEquipment | LoadFactor | 0.37 | 0.37 |
| tblOffRoadEquipment | LoadFactor | 0.29 | 0.29 |
| tblOffRoadEquipment | LoadFactor | 0.38 | 0.38 |
| tblOffRoadEquipment | LoadFactor | 0.78 | 0.50 |
| tblOffRoadEquipment | LoadFactor | 0.20 | 0.20 |
| tblOffRoadEquipment | LoadFactor | 0.38 | 0.38 |
| tblOffRoadEquipment | LoadFactor | 0.20 | 0.20 |

| | | | |
|---|---|---|---|
| tblOffRoadEquipment | LoadFactor | 0.41 | 0.41 |
| tblOffRoadEquipment | LoadFactor | 0.38 | 0.38 |
| tblOffRoadEquipment | LoadFactor | 0.37 | 0.37 |
| tblOffRoadEquipment | LoadFactor | 0.42 | 0.42 |
| tblOffRoadEquipment | LoadFactor | 0.20 | 0.20 |
| tblOffRoadEquipment | LoadFactor | 0.38 | 0.38 |
| tblOffRoadEquipment | OffRoadEquipmentType | Air Compressors | Off-Highway Trucks |
| tblOffRoadEquipment | OffRoadEquipmentType | Cement and Mortar Mixers | Air Compressors |
| tblOffRoadEquipment | OffRoadEquipmentType | Concrete/Industrial Saws | Air Compressors |
| tblOffRoadEquipment | OffRoadEquipmentType | Concrete/Industrial Saws | Off-Highway Trucks |
| tblOffRoadEquipment | OffRoadEquipmentType | Cranes | Air Compressors |
| tblOffRoadEquipment | OffRoadEquipmentType | Forklifts | Rubber Tired Loaders |
| tblOffRoadEquipment | OffRoadEquipmentType | Rollers | Cranes |
| tblOffRoadEquipment | OffRoadEquipmentType | Rubber Tired Dozers | Concrete/Industrial Saws |
| tblOffRoadEquipment | OffRoadEquipmentType | Rubber Tired Dozers | Other Material Handling Equipment |
| tblOffRoadEquipment | OffRoadEquipmentType | Tractors/Loaders/Backhoes | Generator Sets |
| tblOffRoadEquipment | OffRoadEquipmentType | Tractors/Loaders/Backhoes | Off-Highway Trucks |
| tblOffRoadEquipment | OffRoadEquipmentType | Tractors/Loaders/Backhoes | Other Material Handling Equipment |
| tblOffRoadEquipment | OffRoadEquipmentType | Tractors/Loaders/Backhoes | Bore/Drill Rigs |
| tblOffRoadEquipment | OffRoadEquipmentType | Tractors/Loaders/Backhoes | Cement and Mortar Mixers |
| tblOffRoadEquipment | OffRoadEquipmentType | Concrete/Industrial Saws | Air Compressors |
| tblOffRoadEquipment | OffRoadEquipmentType | Graders | Off-Highway Trucks |
| tblOffRoadEquipment | OffRoadEquipmentType | Graders | Excavators |
| tblOffRoadEquipment | OffRoadEquipmentType | Graders | Off-Highway Trucks |
| tblOffRoadEquipment | OffRoadEquipmentType | Rubber Tired Dozers | Excavators |
| tblOffRoadEquipment | OffRoadEquipmentType | Tractors/Loaders/Backhoes | Other Construction Equipment |
| tblOffRoadEquipment | OffRoadEquipmentType | | Excavators |

| | | | |
|---|---|---|---|
| tblOffRoadEquipment | OffRoadEquipmentType | | Generator Sets |
| tblOffRoadEquipment | OffRoadEquipmentType | | Graders |
| tblOffRoadEquipment | OffRoadEquipmentType | | Pumps |
| tblOffRoadEquipment | OffRoadEquipmentType | | Rollers |
| tblOffRoadEquipment | OffRoadEquipmentType | | Skid Steer Loaders |
| tblOffRoadEquipment | OffRoadEquipmentType | | Generator Sets |
| tblOffRoadEquipment | OffRoadEquipmentType | | Cranes |
| tblOffRoadEquipment | OffRoadEquipmentType | | Excavators |
| tblOffRoadEquipment | OffRoadEquipmentType | | Crushing/Proc. Equipment |
| tblOffRoadEquipment | OffRoadEquipmentType | | Forklifts |
| tblOffRoadEquipment | OffRoadEquipmentType | | Off-Highway Trucks |
| tblOffRoadEquipment | OffRoadEquipmentType | | Forklifts |
| tblOffRoadEquipment | OffRoadEquipmentType | | Graders |
| tblOffRoadEquipment | OffRoadEquipmentType | | Pumps |
| tblOffRoadEquipment | OffRoadEquipmentType | | Rollers |
| tblOffRoadEquipment | OffRoadEquipmentType | | Skid Steer Loaders |
| tblOffRoadEquipment | OffRoadEquipmentType | | Other Construction Equipment |
| tblOffRoadEquipment | OffRoadEquipmentType | | Forklifts |
| tblOffRoadEquipment | OffRoadEquipmentType | | Off-Highway Trucks |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 1.00 |
| tblOffRoadEquipment | UsageHours | 1.00 | 6.00 |
| tblOffRoadEquipment | UsageHours | 1.00 | 6.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 1.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 1.00 |
| tblTripsAndVMT | HaulingTripNumber | 285.00 | 22.00 |
| tblTripsAndVMT | HaulingTripNumber | 285.00 | 765.00 |

| | | | |
|---|---|---|---|
| tblTripsAndVMT | HaulingTripNumber | 0.00 | 22.00 |
| tblTripsAndVMT | HaulingTripNumber | 285.00 | 22.00 |
| tblTripsAndVMT | HaulingTripNumber | 285.00 | 765.00 |
| tblTripsAndVMT | HaulingTripNumber | 0.00 | 22.00 |
| tblTripsAndVMT | WorkerTripNumber | 33.00 | 6.00 |
| tblTripsAndVMT | WorkerTripNumber | 25.00 | 10.00 |
| tblTripsAndVMT | WorkerTripNumber | 15.00 | 6.00 |
| tblTripsAndVMT | WorkerTripNumber | 30.00 | 6.00 |
| tblTripsAndVMT | WorkerTripNumber | 28.00 | 10.00 |
| tblTripsAndVMT | WorkerTripNumber | 15.00 | 6.00 |

## 2.0 Emissions Summary

## 2.1 Overall Construction

### Unmitigated Construction

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | tons/yr | | | | | | | | | | MT/yr | | | | | |
| 2021 | 0.1186 | 1.2204 | 0.7815 | 2.1900e-003 | 0.1230 | 0.0509 | 0.1738 | 0.0655 | 0.0478 | 0.1133 | 0.0000 | 194.8679 | 194.8679 | 0.0412 | 0.0000 | 195.8966 |
| 2022 | 0.0838 | 0.8399 | 0.7806 | 1.6700e-003 | 0.1107 | 0.0391 | 0.1499 | 0.0645 | 0.0366 | 0.1012 | 0.0000 | 148.3809 | 148.3809 | 0.0313 | 0.0000 | 149.1626 |
| **Maximum** | **0.1186** | **1.2204** | **0.7815** | **2.1900e-003** | **0.1230** | **0.0509** | **0.1738** | **0.0655** | **0.0478** | **0.1133** | **0.0000** | **194.8679** | **194.8679** | **0.0412** | **0.0000** | **195.8966** |

### Mitigated Construction

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | tons/yr | | | | | | | | | | MT/yr | | | | | |
| 2021 | 0.1186 | 1.2204 | 0.7815 | 2.1900e-003 | 0.0619 | 0.0509 | 0.1128 | 0.0313 | 0.0478 | 0.0791 | 0.0000 | 194.8677 | 194.8677 | 0.0412 | 0.0000 | 195.8964 |
| 2022 | 0.0838 | 0.8399 | 0.7806 | 1.6700e-003 | 0.0557 | 0.0391 | 0.0948 | 0.0306 | 0.0366 | 0.0672 | 0.0000 | 148.3808 | 148.3808 | 0.0313 | 0.0000 | 149.1625 |
| **Maximum** | **0.1186** | **1.2204** | **0.7815** | **2.1900e-003** | **0.0619** | **0.0509** | **0.1128** | **0.0313** | **0.0478** | **0.0791** | **0.0000** | **194.8677** | **194.8677** | **0.0412** | **0.0000** | **195.8964** |

| | **ROG** | **NOx** | **CO** | **SO2** | **Fugitive PM10** | **Exhaust PM10** | **PM10 Total** | **Fugitive PM2.5** | **Exhaust PM2.5** | **PM2.5 Total** | **Bio- CO2** | **NBio-CO2** | **Total CO2** | **CH4** | **N20** | **CO2e** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **49.68** | **0.00** | **35.87** | **52.41** | **0.00** | **31.78** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

Calabazas Creek Bank Rehabilitation Project - Santa Clara County, Annual

| Quarter | Start Date | End Date | Maximum Unmitigated ROG + NOX (tons/quarter) | Maximum Mitigated ROG + NOX (tons/quarter) |
|---|---|---|---|---|
| **1** | **4-15-2021** | **7-14-2021** | 0.6471 | 0.6471 |
| **2** | **7-15-2021** | **10-14-2021** | 0.6761 | 0.6761 |
| **3** | **10-15-2021** | **1-14-2022** | 0.0033 | 0.0033 |
| **5** | **4-15-2022** | **7-14-2022** | 0.5295 | 0.5295 |
| **6** | **7-15-2022** | **9-30-2022** | 0.3945 | 0.3945 |
| | | **Highest** | 0.6761 | 0.6761 |

## 2.2 Overall Operational

### Unmitigated Operational

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Area | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

### Mitigated Operational

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Area | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

| | **ROG** | **NOx** | **CO** | **SO2** | **Fugitive PM10** | **Exhaust PM10** | **PM10 Total** | **Fugitive PM2.5** | **Exhaust PM2.5** | **PM2.5 Total** | **Bio- CO2** | **NBio-CO2** | **Total CO2** | **CH4** | **N20** | **CO2e** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

## 3.0 Construction Detail

### Construction Phase

| Phase Number | Phase Name | Phase Type | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|---|---|---|---|---|---|---|---|
| 1 | Site Prep - Year 1 | Site Preparation | 4/15/2021 | 5/14/2021 | 5 | 22 | |
| 2 | Bank Rehab - Year 1 | Grading | 5/15/2021 | 9/10/2021 | 5 | 85 | |
| 3 | Site Restoration - Year 1 | Site Preparation | 9/15/2021 | 10/15/2021 | 5 | 23 | |
| 4 | Site Prep - Year 2 | Site Preparation | 4/15/2022 | 5/13/2022 | 5 | 21 | |
| 5 | Bank Rehab - Year 2 | Grading | 5/15/2022 | 9/12/2022 | 5 | 86 | |
| 6 | Site Restoration - Year 2 | Site Preparation | 9/15/2021 | 10/14/2021 | 5 | 22 | |

**Acres of Grading (Site Preparation Phase): 0**

**Acres of Grading (Grading Phase): 0**

**Acres of Paving: 0**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)**

### OffRoad Equipment

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|---|---|---|---|---|---|
| Site Prep - Year 2 | Tractors/Loaders/Backhoes | 1 | 8.00 | 97 | 0.37 |
| Site Restoration - Year 2 | Tractors/Loaders/Backhoes | 1 | 8.00 | 97 | 0.37 |
| Site Restoration - Year 2 | Off-Highway Trucks | 3 | 8.00 | 78 | 0.48 |
| Bank Rehab - Year 2 | Air Compressors | 1 | 2.00 | 9 | 0.56 |
| Site Prep - Year 1 | Air Compressors | 1 | 3.00 | 81 | 0.73 |
| Site Restoration - Year 1 | Off-Highway Trucks | 3 | 8.00 | 81 | 0.73 |
| Site Prep - Year 2 | Air Compressors | 1 | 3.00 | 231 | 0.29 |

| | | | | | |
|---|---|---|---|---|---|
| Site Prep - Year 2 | Rubber Tired Loaders | 1 | 8.00 | 89 | 0.20 |
| Bank Rehab - Year 1 | Tractors/Loaders/Backhoes | 1 | 6.00 | 187 | 0.41 |
| Bank Rehab - Year 2 | Rubber Tired Dozers | 1 | 6.00 | 130 | 0.42 |
| Bank Rehab - Year 2 | Cranes | 2 | 2.00 | 80 | 0.38 |
| Site Prep - Year 1 | Concrete/Industrial Saws | 1 | 1.00 | 247 | 0.40 |
| Site Restoration - Year 1 | Other Material Handling Equipment | | | 247 | 0.40 |
| Site Prep - Year 2 | Generator Sets | 2 | 1.00 | 97 | 0.37 |
| Site Prep - Year 1 | Off-Highway Trucks | 2 | 8.00 | 97 | 0.37 |
| Site Restoration - Year 1 | Other Material Handling Equipment | | | 97 | 0.37 |
| Bank Rehab - Year 2 | Bore/Drill Rigs | 2 | 4.00 | 97 | 0.37 |
| Bank Rehab - Year 1 | Cement and Mortar Mixers | 1 | 1.00 | 97 | 0.37 |
| Bank Rehab - Year 1 | Air Compressors | 1 | 2.00 | 81 | 0.73 |
| Bank Rehab - Year 2 | Tractors/Loaders/Backhoes | 1 | 6.00 | 81 | 0.73 |
| Site Prep - Year 1 | Tractors/Loaders/Backhoes | 1 | 8.00 | 187 | 0.41 |
| Site Restoration - Year 1 | Off-Highway Trucks | 1 | 1.00 | 187 | 0.41 |
| Site Prep - Year 2 | Excavators | 1 | 8.00 | 187 | 0.41 |
| Site Restoration - Year 2 | Off-Highway Trucks | 1 | 1.00 | 187 | 0.41 |
| Bank Rehab - Year 1 | Rubber Tired Dozers | 1 | 6.00 | 247 | 0.40 |
| Bank Rehab - Year 2 | Excavators | 1 | 4.00 | 247 | 0.40 |
| Site Restoration - Year 2 | Other Construction Equipment | | | 97 | 0.37 |
| Site Prep - Year 1 | Excavators | 1 | 8.00 | 158 | 0.38 |
| Site Prep - Year 1 | Generator Sets | 2 | 1.00 | 84 | 0.74 |
| Site Prep - Year 1 | Graders | 1 | 1.00 | 187 | 0.41 |
| Site Prep - Year 1 | Pumps | 2 | 1.00 | 84 | 0.74 |
| Site Prep - Year 1 | Rollers | 1 | 8.00 | 80 | 0.38 |
| Site Prep - Year 1 | Skid Steer Loaders | 1 | 8.00 | 65 | 0.37 |
| Site Prep - Year 1 | Generator Sets | | | 84 | 0.74 |

| | | | | | |
|---|---|---|---|---|---|
| Bank Rehab - Year 1 | Cranes | | | 231 | 0.29 |
| Bank Rehab - Year 1 | Excavators | 1 | 4.00 | 402 | 0.38 |
| Bank Rehab - Year 1 | Crushing/Proc. Equipment | 2 | 1.00 | 221 | 0.50 |
| Bank Rehab - Year 1 | Forklifts | 1 | 6.00 | 89 | 0.20 |
| Bank Rehab - Year 1 | Off-Highway Trucks | 1 | 1.00 | 402 | 0.38 |
| Site Prep - Year 2 | Forklifts | 1 | 8.00 | 89 | 0.20 |
| Site Prep - Year 2 | Graders | 1 | 1.00 | 187 | 0.41 |
| Site Prep - Year 2 | Pumps | 2 | 1.00 | 84 | 0.74 |
| Site Prep - Year 2 | Rollers | 1 | 8.00 | 80 | 0.38 |
| Site Prep - Year 2 | Skid Steer Loaders | 1 | 8.00 | 65 | 0.37 |
| Site Prep - Year 2 | Other Construction Equipment | | | 172 | 0.42 |
| Bank Rehab - Year 2 | Forklifts | 1 | 6.00 | 89 | 0.20 |
| Bank Rehab - Year 2 | Off-Highway Trucks | 1 | 1.00 | 402 | 0.38 |
| Bank Rehab - Year 1 | Concrete/Industrial Saws | 1 | 8.00 | 81 | 0.73 |
| Bank Rehab - Year 2 | Concrete/Industrial Saws | 1 | 8.00 | 81 | 0.73 |
| Site Restoration - Year 1 | Graders | 1 | 8.00 | 187 | 0.41 |
| Site Restoration - Year 2 | Graders | 1 | 8.00 | 187 | 0.41 |
| Site Restoration - Year 1 | Tractors/Loaders/Backhoes | 1 | 8.00 | 97 | 0.37 |

**Trips and VMT**

| Phase Name | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|---|---|---|---|---|---|---|---|---|---|---|
| Site Prep - Year 1 | 13 | 6.00 | 0.00 | 22.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Bank Rehab - Year 1 | 10 | 10.00 | 0.00 | 765.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Site Restoration - Year 1 | 6 | 6.00 | 0.00 | 22.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Site Prep - Year 2 | 12 | 6.00 | 0.00 | 22.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Bank Rehab - Year 2 | 11 | 10.00 | 0.00 | 765.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Site Restoration - Year 2 | 6 | 6.00 | 0.00 | 22.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |

## 3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

## 3.2 Site Prep - Year 1 - 2021

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 4.4000e-003 | 0.0000 | 4.4000e-003 | 1.1100e-003 | 0.0000 | 1.1100e-003 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0131 | 0.1299 | 0.1281 | 2.5000e-004 | | 6.0900e-003 | 6.0900e-003 | | 5.7500e-003 | 5.7500e-003 | 0.0000 | 21.9838 | 21.9838 | 5.7000e-003 | 0.0000 | 22.1264 |
| **Total** | **0.0131** | **0.1299** | **0.1281** | **2.5000e-004** | **4.4000e-003** | **6.0900e-003** | **0.0105** | **1.1100e-003** | **5.7500e-003** | **6.8600e-003** | **0.0000** | **21.9838** | **21.9838** | **5.7000e-003** | **0.0000** | **22.1264** |

## 3.2 Site Prep - Year 1 - 2021

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 9.0000e-005 | 2.9400e-003 | 6.4000e-004 | 1.0000e-005 | 1.9000e-004 | 1.0000e-005 | 2.0000e-004 | 5.0000e-005 | 1.0000e-005 | 6.0000e-005 | 0.0000 | 0.8283 | 0.8283 | 4.0000e-005 | 0.0000 | 0.8293 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 2.0000e-004 | 1.4000e-004 | 1.5100e-003 | 0.0000 | 5.2000e-004 | 0.0000 | 5.3000e-004 | 1.4000e-004 | 0.0000 | 1.4000e-004 | 0.0000 | 0.4333 | 0.4333 | 1.0000e-005 | 0.0000 | 0.4336 |
| **Total** | **2.9000e-004** | **3.0800e-003** | **2.1500e-003** | **1.0000e-005** | **7.1000e-004** | **1.0000e-005** | **7.3000e-004** | **1.9000e-004** | **1.0000e-005** | **2.0000e-004** | **0.0000** | **1.2617** | **1.2617** | **5.0000e-005** | **0.0000** | **1.2628** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 1.9800e-003 | 0.0000 | 1.9800e-003 | 5.0000e-004 | 0.0000 | 5.0000e-004 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0131 | 0.1299 | 0.1281 | 2.5000e-004 | | 6.0900e-003 | 6.0900e-003 | | 5.7500e-003 | 5.7500e-003 | 0.0000 | 21.9838 | 21.9838 | 5.7000e-003 | 0.0000 | 22.1264 |
| **Total** | **0.0131** | **0.1299** | **0.1281** | **2.5000e-004** | **1.9800e-003** | **6.0900e-003** | **8.0700e-003** | **5.0000e-004** | **5.7500e-003** | **6.2500e-003** | **0.0000** | **21.9838** | **21.9838** | **5.7000e-003** | **0.0000** | **22.1264** |

## 3.2 Site Prep - Year 1 - 2021

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 9.0000e-005 | 2.9400e-003 | 6.4000e-004 | 1.0000e-005 | 1.9000e-004 | 1.0000e-005 | 2.0000e-004 | 5.0000e-005 | 1.0000e-005 | 6.0000e-005 | 0.0000 | 0.8283 | 0.8283 | 4.0000e-005 | 0.0000 | 0.8293 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 2.0000e-004 | 1.4000e-004 | 1.5100e-003 | 0.0000 | 5.2000e-004 | 0.0000 | 5.3000e-004 | 1.4000e-004 | 0.0000 | 1.4000e-004 | 0.0000 | 0.4333 | 0.4333 | 1.0000e-005 | 0.0000 | 0.4336 |
| **Total** | **2.9000e-004** | **3.0800e-003** | **2.1500e-003** | **1.0000e-005** | **7.1000e-004** | **1.0000e-005** | **7.3000e-004** | **1.9000e-004** | **1.0000e-005** | **2.0000e-004** | **0.0000** | **1.2617** | **1.2617** | **5.0000e-005** | **0.0000** | **1.2628** |

## 3.3 Bank Rehab - Year 1 - 2021

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0946 | 0.0000 | 0.0946 | 0.0599 | 0.0000 | 0.0599 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0849 | 0.7941 | 0.5192 | 1.3400e-003 | | 0.0374 | 0.0374 | | 0.0352 | 0.0352 | 0.0000 | 116.6237 | 116.6237 | 0.0272 | 0.0000 | 117.3033 |
| **Total** | **0.0849** | **0.7941** | **0.5192** | **1.3400e-003** | **0.0946** | **0.0374** | **0.1320** | **0.0599** | **0.0352** | **0.0951** | **0.0000** | **116.6237** | **116.6237** | **0.0272** | **0.0000** | **117.3033** |

## 3.3 Bank Rehab - Year 1 - 2021

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 3.0000e-003 | 0.1023 | 0.0223 | 3.0000e-004 | 6.4800e-003 | 3.2000e-004 | 6.8000e-003 | 1.7800e-003 | 3.1000e-004 | 2.0900e-003 | 0.0000 | 28.8035 | 28.8035 | 1.3100e-003 | 0.0000 | 28.8362 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.3100e-003 | 9.1000e-004 | 9.7200e-003 | 3.0000e-005 | 3.3700e-003 | 2.0000e-005 | 3.3900e-003 | 9.0000e-004 | 2.0000e-005 | 9.2000e-004 | 0.0000 | 2.7903 | 2.7903 | 6.0000e-005 | 0.0000 | 2.7919 |
| **Total** | **4.3100e-003** | **0.1032** | **0.0320** | **3.3000e-004** | **9.8500e-003** | **3.4000e-004** | **0.0102** | **2.6800e-003** | **3.3000e-004** | **3.0100e-003** | **0.0000** | **31.5938** | **31.5938** | **1.3700e-003** | **0.0000** | **31.6281** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0426 | 0.0000 | 0.0426 | 0.0269 | 0.0000 | 0.0269 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0849 | 0.7941 | 0.5192 | 1.3400e-003 | | 0.0374 | 0.0374 | | 0.0352 | 0.0352 | 0.0000 | 116.6235 | 116.6235 | 0.0272 | 0.0000 | 117.3031 |
| **Total** | **0.0849** | **0.7941** | **0.5192** | **1.3400e-003** | **0.0426** | **0.0374** | **0.0799** | **0.0269** | **0.0352** | **0.0621** | **0.0000** | **116.6235** | **116.6235** | **0.0272** | **0.0000** | **117.3031** |

## 3.3 Bank Rehab - Year 1 - 2021

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 3.0000e-003 | 0.1023 | 0.0223 | 3.0000e-004 | 6.4800e-003 | 3.2000e-004 | 6.8000e-003 | 1.7800e-003 | 3.1000e-004 | 2.0900e-003 | 0.0000 | 28.8035 | 28.8035 | 1.3100e-003 | 0.0000 | 28.8362 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.3100e-003 | 9.1000e-004 | 9.7200e-003 | 3.0000e-005 | 3.3700e-003 | 2.0000e-005 | 3.3900e-003 | 9.0000e-004 | 2.0000e-005 | 9.2000e-004 | 0.0000 | 2.7903 | 2.7903 | 6.0000e-005 | 0.0000 | 2.7919 |
| **Total** | **4.3100e-003** | **0.1032** | **0.0320** | **3.3000e-004** | **9.8500e-003** | **3.4000e-004** | **0.0102** | **2.6800e-003** | **3.3000e-004** | **3.0100e-003** | **0.0000** | **31.5938** | **31.5938** | **1.3700e-003** | **0.0000** | **31.6281** |

## 3.4 Site Restoration - Year 1 - 2021

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 6.1000e-003 | 0.0000 | 6.1000e-003 | 6.6000e-004 | 0.0000 | 6.6000e-004 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 7.8500e-003 | 0.0940 | 0.0489 | 1.2000e-004 | | 3.6000e-003 | 3.6000e-003 | | 3.3200e-003 | 3.3200e-003 | 0.0000 | 10.6628 | 10.6628 | 3.4500e-003 | 0.0000 | 10.7490 |
| **Total** | **7.8500e-003** | **0.0940** | **0.0489** | **1.2000e-004** | **6.1000e-003** | **3.6000e-003** | **9.7000e-003** | **6.6000e-004** | **3.3200e-003** | **3.9800e-003** | **0.0000** | **10.6628** | **10.6628** | **3.4500e-003** | **0.0000** | **10.7490** |

## 3.4 Site Restoration - Year 1 - 2021

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 9.0000e-005 | 2.9400e-003 | 6.4000e-004 | 1.0000e-005 | 1.9000e-004 | 1.0000e-005 | 2.0000e-004 | 5.0000e-005 | 1.0000e-005 | 6.0000e-005 | 0.0000 | 0.8283 | 0.8283 | 4.0000e-005 | 0.0000 | 0.8293 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 2.1000e-004 | 1.5000e-004 | 1.5800e-003 | 1.0000e-005 | 5.5000e-004 | 0.0000 | 5.5000e-004 | 1.5000e-004 | 0.0000 | 1.5000e-004 | 0.0000 | 0.4530 | 0.4530 | 1.0000e-005 | 0.0000 | 0.4533 |
| **Total** | **3.0000e-004** | **3.0900e-003** | **2.2200e-003** | **2.0000e-005** | **7.4000e-004** | **1.0000e-005** | **7.5000e-004** | **2.0000e-004** | **1.0000e-005** | **2.1000e-004** | **0.0000** | **1.2814** | **1.2814** | **5.0000e-005** | **0.0000** | **1.2826** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 2.7400e-003 | 0.0000 | 2.7400e-003 | 3.0000e-004 | 0.0000 | 3.0000e-004 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 7.8500e-003 | 0.0940 | 0.0489 | 1.2000e-004 | | 3.6000e-003 | 3.6000e-003 | | 3.3200e-003 | 3.3200e-003 | 0.0000 | 10.6628 | 10.6628 | 3.4500e-003 | 0.0000 | 10.7490 |
| **Total** | **7.8500e-003** | **0.0940** | **0.0489** | **1.2000e-004** | **2.7400e-003** | **3.6000e-003** | **6.3400e-003** | **3.0000e-004** | **3.3200e-003** | **3.6200e-003** | **0.0000** | **10.6628** | **10.6628** | **3.4500e-003** | **0.0000** | **10.7490** |

## 3.4 Site Restoration - Year 1 - 2021

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 9.0000e-005 | 2.9400e-003 | 6.4000e-004 | 1.0000e-005 | 1.9000e-004 | 1.0000e-005 | 2.0000e-004 | 5.0000e-005 | 1.0000e-005 | 6.0000e-005 | 0.0000 | 0.8283 | 0.8283 | 4.0000e-005 | 0.0000 | 0.8293 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 2.1000e-004 | 1.5000e-004 | 1.5800e-003 | 1.0000e-005 | 5.5000e-004 | 0.0000 | 5.5000e-004 | 1.5000e-004 | 0.0000 | 1.5000e-004 | 0.0000 | 0.4530 | 0.4530 | 1.0000e-005 | 0.0000 | 0.4533 |
| **Total** | **3.0000e-004** | **3.0900e-003** | **2.2200e-003** | **2.0000e-005** | **7.4000e-004** | **1.0000e-005** | **7.5000e-004** | **2.0000e-004** | **1.0000e-005** | **2.1000e-004** | **0.0000** | **1.2814** | **1.2814** | **5.0000e-005** | **0.0000** | **1.2826** |

## 3.5 Site Prep - Year 2 - 2022

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 4.4000e-003 | 0.0000 | 4.4000e-003 | 1.1100e-003 | 0.0000 | 1.1100e-003 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0121 | 0.1151 | 0.1204 | 2.5000e-004 | | 5.6600e-003 | 5.6600e-003 | | 5.2800e-003 | 5.2800e-003 | 0.0000 | 21.5525 | 21.5525 | 5.6500e-003 | 0.0000 | 21.6938 |
| **Total** | **0.0121** | **0.1151** | **0.1204** | **2.5000e-004** | **4.4000e-003** | **5.6600e-003** | **0.0101** | **1.1100e-003** | **5.2800e-003** | **6.3900e-003** | **0.0000** | **21.5525** | **21.5525** | **5.6500e-003** | **0.0000** | **21.6938** |

## 3.5 Site Prep - Year 2 - 2022

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 8.0000e-005 | 2.7000e-003 | 6.3000e-004 | 1.0000e-005 | 1.9000e-004 | 1.0000e-005 | 1.9000e-004 | 5.0000e-005 | 1.0000e-005 | 6.0000e-005 | 0.0000 | 0.8172 | 0.8172 | 4.0000e-005 | 0.0000 | 0.8181 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.8000e-004 | 1.2000e-004 | 1.3200e-003 | 0.0000 | 5.0000e-004 | 0.0000 | 5.0000e-004 | 1.3000e-004 | 0.0000 | 1.4000e-004 | 0.0000 | 0.3986 | 0.3986 | 1.0000e-005 | 0.0000 | 0.3988 |
| **Total** | **2.6000e-004** | **2.8200e-003** | **1.9500e-003** | **1.0000e-005** | **6.9000e-004** | **1.0000e-005** | **6.9000e-004** | **1.8000e-004** | **1.0000e-005** | **2.0000e-004** | **0.0000** | **1.2158** | **1.2158** | **5.0000e-005** | **0.0000** | **1.2169** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 1.9800e-003 | 0.0000 | 1.9800e-003 | 5.0000e-004 | 0.0000 | 5.0000e-004 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0121 | 0.1151 | 0.1204 | 2.5000e-004 | | 5.6600e-003 | 5.6600e-003 | | 5.2800e-003 | 5.2800e-003 | 0.0000 | 21.5525 | 21.5525 | 5.6500e-003 | 0.0000 | 21.6938 |
| **Total** | **0.0121** | **0.1151** | **0.1204** | **2.5000e-004** | **1.9800e-003** | **5.6600e-003** | **7.6400e-003** | **5.0000e-004** | **5.2800e-003** | **5.7800e-003** | **0.0000** | **21.5525** | **21.5525** | **5.6500e-003** | **0.0000** | **21.6938** |

## 3.5 Site Prep - Year 2 - 2022

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 8.0000e-005 | 2.7000e-003 | 6.3000e-004 | 1.0000e-005 | 1.9000e-004 | 1.0000e-005 | 1.9000e-004 | 5.0000e-005 | 1.0000e-005 | 6.0000e-005 | 0.0000 | 0.8172 | 0.8172 | 4.0000e-005 | 0.0000 | 0.8181 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.8000e-004 | 1.2000e-004 | 1.3200e-003 | 0.0000 | 5.0000e-004 | 0.0000 | 5.0000e-004 | 1.3000e-004 | 0.0000 | 1.4000e-004 | 0.0000 | 0.3986 | 0.3986 | 1.0000e-005 | 0.0000 | 0.3988 |
| **Total** | **2.6000e-004** | **2.8200e-003** | **1.9500e-003** | **1.0000e-005** | **6.9000e-004** | **1.0000e-005** | **6.9000e-004** | **1.8000e-004** | **1.0000e-005** | **2.0000e-004** | **0.0000** | **1.2158** | **1.2158** | **5.0000e-005** | **0.0000** | **1.2169** |

## 3.6 Bank Rehab - Year 2 - 2022

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0957 | 0.0000 | 0.0957 | 0.0606 | 0.0000 | 0.0606 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0674 | 0.6272 | 0.6273 | 1.0800e-003 | | 0.0332 | 0.0332 | | 0.0310 | 0.0310 | 0.0000 | 94.4769 | 94.4769 | 0.0242 | 0.0000 | 95.0827 |
| **Total** | **0.0674** | **0.6272** | **0.6273** | **1.0800e-003** | **0.0957** | **0.0332** | **0.1289** | **0.0606** | **0.0310** | **0.0916** | **0.0000** | **94.4769** | **94.4769** | **0.0242** | **0.0000** | **95.0827** |

## 3.6 Bank Rehab - Year 2 - 2022

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 2.8300e-003 | 0.0939 | 0.0219 | 2.9000e-004 | 6.4900e-003 | 2.7000e-004 | 6.7600e-003 | 1.7800e-003 | 2.6000e-004 | 2.0500e-003 | 0.0000 | 28.4152 | 28.4152 | 1.2800e-003 | 0.0000 | 28.4471 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.2400e-003 | 8.2000e-004 | 9.0400e-003 | 3.0000e-005 | 3.4100e-003 | 2.0000e-005 | 3.4300e-003 | 9.1000e-004 | 2.0000e-005 | 9.3000e-004 | 0.0000 | 2.7206 | 2.7206 | 6.0000e-005 | 0.0000 | 2.7220 |
| **Total** | **4.0700e-003** | **0.0948** | **0.0310** | **3.2000e-004** | **9.9000e-003** | **2.9000e-004** | **0.0102** | **2.6900e-003** | **2.8000e-004** | **2.9800e-003** | **0.0000** | **31.1358** | **31.1358** | **1.3400e-003** | **0.0000** | **31.1692** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0431 | 0.0000 | 0.0431 | 0.0273 | 0.0000 | 0.0273 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0674 | 0.6272 | 0.6273 | 1.0800e-003 | | 0.0332 | 0.0332 | | 0.0310 | 0.0310 | 0.0000 | 94.4767 | 94.4767 | 0.0242 | 0.0000 | 95.0826 |
| **Total** | **0.0674** | **0.6272** | **0.6273** | **1.0800e-003** | **0.0431** | **0.0332** | **0.0762** | **0.0273** | **0.0310** | **0.0583** | **0.0000** | **94.4767** | **94.4767** | **0.0242** | **0.0000** | **95.0826** |

## 3.6 Bank Rehab - Year 2 - 2022

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 2.8300e-003 | 0.0939 | 0.0219 | 2.9000e-004 | 6.4900e-003 | 2.7000e-004 | 6.7600e-003 | 1.7800e-003 | 2.6000e-004 | 2.0500e-003 | 0.0000 | 28.4152 | 28.4152 | 1.2800e-003 | 0.0000 | 28.4471 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.2400e-003 | 8.2000e-004 | 9.0400e-003 | 3.0000e-005 | 3.4100e-003 | 2.0000e-005 | 3.4300e-003 | 9.1000e-004 | 2.0000e-005 | 9.3000e-004 | 0.0000 | 2.7206 | 2.7206 | 6.0000e-005 | 0.0000 | 2.7220 |
| **Total** | **4.0700e-003** | **0.0948** | **0.0310** | **3.2000e-004** | **9.9000e-003** | **2.9000e-004** | **0.0102** | **2.6900e-003** | **2.8000e-004** | **2.9800e-003** | **0.0000** | **31.1358** | **31.1358** | **1.3400e-003** | **0.0000** | **31.1692** |

## 3.7 Site Restoration - Year 2 - 2021

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 5.8300e-003 | 0.0000 | 5.8300e-003 | 6.3000e-004 | 0.0000 | 6.3000e-004 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 7.5100e-003 | 0.0899 | 0.0468 | 1.2000e-004 | | 3.4500e-003 | 3.4500e-003 | | 3.1700e-003 | 3.1700e-003 | 0.0000 | 10.1992 | 10.1992 | 3.3000e-003 | 0.0000 | 10.2816 |
| **Total** | **7.5100e-003** | **0.0899** | **0.0468** | **1.2000e-004** | **5.8300e-003** | **3.4500e-003** | **9.2800e-003** | **6.3000e-004** | **3.1700e-003** | **3.8000e-003** | **0.0000** | **10.1992** | **10.1992** | **3.3000e-003** | **0.0000** | **10.2816** |

## 3.7 Site Restoration - Year 2 - 2021

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 9.0000e-005 | 2.9400e-003 | 6.4000e-004 | 1.0000e-005 | 1.9000e-004 | 1.0000e-005 | 2.0000e-004 | 5.0000e-005 | 1.0000e-005 | 6.0000e-005 | 0.0000 | 0.8283 | 0.8283 | 4.0000e-005 | 0.0000 | 0.8293 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 2.0000e-004 | 1.4000e-004 | 1.5100e-003 | 0.0000 | 5.2000e-004 | 0.0000 | 5.3000e-004 | 1.4000e-004 | 0.0000 | 1.4000e-004 | 0.0000 | 0.4333 | 0.4333 | 1.0000e-005 | 0.0000 | 0.4336 |
| **Total** | **2.9000e-004** | **3.0800e-003** | **2.1500e-003** | **1.0000e-005** | **7.1000e-004** | **1.0000e-005** | **7.3000e-004** | **1.9000e-004** | **1.0000e-005** | **2.0000e-004** | **0.0000** | **1.2617** | **1.2617** | **5.0000e-005** | **0.0000** | **1.2628** |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 2.6200e-003 | 0.0000 | 2.6200e-003 | 2.8000e-004 | 0.0000 | 2.8000e-004 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 7.5100e-003 | 0.0899 | 0.0468 | 1.2000e-004 | | 3.4500e-003 | 3.4500e-003 | | 3.1700e-003 | 3.1700e-003 | 0.0000 | 10.1992 | 10.1992 | 3.3000e-003 | 0.0000 | 10.2816 |
| **Total** | **7.5100e-003** | **0.0899** | **0.0468** | **1.2000e-004** | **2.6200e-003** | **3.4500e-003** | **6.0700e-003** | **2.8000e-004** | **3.1700e-003** | **3.4500e-003** | **0.0000** | **10.1992** | **10.1992** | **3.3000e-003** | **0.0000** | **10.2816** |

### 3.7 Site Restoration - Year 2 - 2021

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 9.0000e-005 | 2.9400e-003 | 6.4000e-004 | 1.0000e-005 | 1.9000e-004 | 1.0000e-005 | 2.0000e-004 | 5.0000e-005 | 1.0000e-005 | 6.0000e-005 | 0.0000 | 0.8283 | 0.8283 | 4.0000e-005 | 0.0000 | 0.8293 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 2.0000e-004 | 1.4000e-004 | 1.5100e-003 | 0.0000 | 5.2000e-004 | 0.0000 | 5.3000e-004 | 1.4000e-004 | 0.0000 | 1.4000e-004 | 0.0000 | 0.4333 | 0.4333 | 1.0000e-005 | 0.0000 | 0.4336 |
| **Total** | **2.9000e-004** | **3.0800e-003** | **2.1500e-003** | **1.0000e-005** | **7.1000e-004** | **1.0000e-005** | **7.3000e-004** | **1.9000e-004** | **1.0000e-005** | **2.0000e-004** | **0.0000** | **1.2617** | **1.2617** | **5.0000e-005** | **0.0000** | **1.2628** |

## 4.0 Operational Detail - Mobile

### 4.1 Mitigation Measures Mobile

### 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Total | | | | | |

### 4.3 Trip Type Information

| | Miles | | | Trip % | | | Trip Purpose % | | |
|---|---|---|---|---|---|---|---|---|---|
| Land Use | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary | Diverted | Pass-by |

### 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0.610498 | 0.036775 | 0.183084 | 0.106123 | 0.014413 | 0.005007 | 0.012610 | 0.021118 | 0.002144 | 0.001548 | 0.005312 | 0.000627 | 0.000740 |

## 5.0 Energy Detail

Historical Energy Use: N

### 5.1 Mitigation Measures Energy

## 6.0 Area Detail

### 6.1 Mitigation Measures Area

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Mitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Unmitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

## 6.2 Area by SubCategory

**Unmitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Architectural Coating | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Consumer Products | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Hearth | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

## 6.2 Area by SubCategory

**Mitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Architectural Coating | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Consumer Products | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Hearth | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

# 7.0 Water Detail

## 7.1 Mitigation Measures Water

# 8.0 Waste Detail

## 8.1 Mitigation Measures Waste

**Category/Year**

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| | MT/yr | | | |
| Mitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Unmitigated | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

## 8.2 Waste by Land Use

**Unmitigated**

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |
| | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

## 8.2 Waste by Land Use

**Mitigated**

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |
| | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total** | | **0.0000** | **0.0000** | **0.0000** | **0.0000** |

## 9.0 Operational Offroad

| Equipment Type | Number | Hours/Day | Days/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|

## 10.0 Stationary Equipment

**Fire Pumps and Emergency Generators**

| Equipment Type | Number | Hours/Day | Hours/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|

**Boilers**

| Equipment Type | Number | Heat Input/Day | Heat Input/Year | Boiler Rating | Fuel Type |
|---|---|---|---|---|---|

**User Defined Equipment**

| Equipment Type | Number |
|---|---|

## 11.0 Vegetation

# Appendix C
Biological Site Assessment

# Calabazas Creek Bank Rehabilitation Project

**Biological Site Assessment to Support the Project's**

**CEQA and Biological Resource Permit Applications**

**Prepared by:**

**Valley Water**

**5750 Almaden Expressway**

**San Jose, CA 95118**



**August 10, 2020**

**Revised November 12, 2020**

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# Section 1. Introduction

This Biological Site Assessment (BSA) provides the baseline environmental setting, as related to biological resources, for Valley Water's proposed Calabazas Creek Bank Rehabilitation Project (Project). The purpose of this BSA is to identify sensitive biological resources that may be present in the Project area, to evaluate potential Project impacts on those resources, and determine if measures could be implemented by the Project to avoid and minimize impacts to biological resources. This BSA is intended to support the Project's biological resource permit applications and the biological resources section of the California Environmental Quality Act (CEQA) Mitigated Negative Declaration (MND).

For this BSA sensitive biological resources are defined as:

- Wetlands, streams, and the riparian vegetation surrounding them
- Critical Habitats designated by United States Fish and Wildlife Service (USFWS) or National Marine Fisheries Service
- Sensitive Natural Communities defined by California Department of Fish and Wildlife (CDFW) as natural communities with State Rankings S1-S3
- Nesting birds and raptor nests in or near the Project area, pursuant to Federal or State law
- Special-status species

For this BSA, special-status species are defined as:

- Plants that are listed as threatened, endangered, or have a California Rare Plant Ranking (CRPR) of 1A, 1B, 2A, 2B, 3, or 4
- Animals that are listed as candidate, threatened, endangered, or fully protected, pursuant to Federal or State law
- Animals that are listed as California Species of Special Concern (CSSC) by CDFW
- Bat species designated as high or medium priority by the Western Bat Working Group (WBWG-M & WBWG-H)

This BSA was performed by Valley Water Wildlife Biologist Shawn Lockwood and Valley Water Senior Plant Ecologist Janell Hillman (hereinafter "we").

## 1.1 Project Background

Valley Water is responsible for maintenance of Calabazas Creek, which extends approximately 13.3 miles from the confluence with the Guadalupe Slough on the San Francisco Bay upstream to the Saratoga foothills. The total drainage area of Calabazas Creek is 22.7 square miles, over 90% of which is urbanized. Consequently, maintenance of the creek channel is necessary to support the creek's function as a flood protection facility, to prevent damage to adjacent properties from erosion, and to minimize impacts to the natural creek habitat (e.g., loss of habitat, reduced water quality).

The Project reach, which spans approximately 0.7 mile from Bollinger Road (upstream end) to Miller Avenue (downstream end), is used for groundwater recharge by Valley Water. Imported water from the Stevens Creek pipeline is released about one-quarter mile upstream of Prospect Road near the Union Pacific Railroad, approximately 1.75 miles upstream of the Project area. The recharge zone usually extends downstream through the Project area and past Interstate 280 to about North Tantau Avenue. Depending

on the gravels in the creek, the released water may go below ground in some areas and re-surface further downstream.

Calabazas Creek in the Project area is a deeply incised watercourse with a history of bank erosion and little distance between the top of bank and residential fence lines. In 2011, Valley Water completed construction of the Calabazas Creek Flood Protection Project along 3.7 miles of Calabazas Creek from Miller Avenue to Wardell Road. As part of that project, Valley Water repaired bank erosion at four locations in the current Project area. During inspections of the Project reach performed by Valley Water in 2017, additional toe erosion, bank failure, and/or surfaces lacking vegetative cover were observed at 10 locations. Many of these deficiencies were the result of winter 2016/2017 storm events and require bank rehabilitation to repair the banks to as-built conditions and prevent further erosion. The purpose of the current Project is to address those deficiencies.

**Figure 1** provides regional context for the Project and depicts the Project reach.

## 1.2 Project Objectives

The Project would repair and stabilize (hereinafter "rehabilitate") eroding channel banks at 10 locations. Specific objectives of the Project are to:

- Rehabilitate damaged creek bank sections to as-built or natural conditions, including to prevent potential damage to adjacent properties
- Minimize future bank failure
- Minimize impacts on water quality and riparian habitat associated with continued bank erosion
- Reduce the need for on-going maintenance
- Continue to provide adequate flood protection

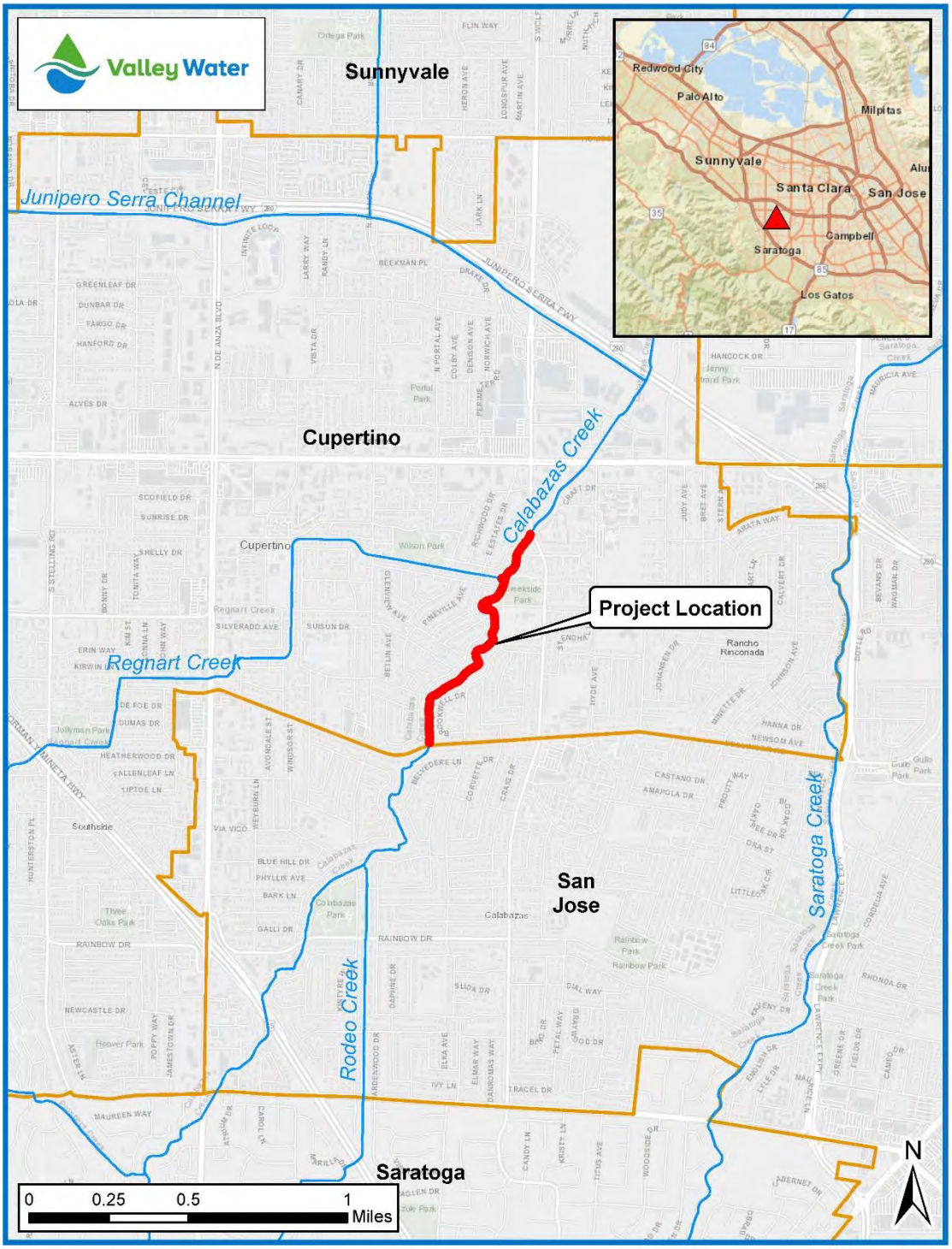


**Figure 1**
Regional Context

## 1.3 Project Description

The Project includes bank rehabilitation at 10 sites where creek banks have been compromised by erosion. Work would generally be conducted in three phases for each site: 1) site preparation, 2) bank protection, and 3) site restoration.

**Figure 2** depicts the locations of the bank failure sites.

**Table 1** details the proposed rehabilitation at each bank failure site.

### 1.3.1 Site Preparation

Site preparation would include establishing staging areas and access locations, dewatering of the creek channel if needed, and preparing each of the 10 work locations for the bank rehabilitation work. Equipment and materials would be delivered to the Project site and staged in an approximately 3,400-square-foot area (120 feet long and 28 feet wide) in the northwest corner of Creekside Park. The staging area would be located on the edge of the existing athletic fields. The access to the creek channel and bank rehabilitation sites would occur from the existing earthen access ramp at Creekside Park and from a paved access ramp on Bollinger Road. Equipment and materials would travel through the channel to the work sites. Materials that would be used for the bank repair would be staged locally prior to the start of work.

While work is anticipated to occur when the creek is dry, there is a low possibility that in-channel pools or minor flows would be encountered. To ensure flows do not enter the work area, cofferdams would be constructed upstream of the work area and water would be pumped through a diversion pipe to a discharge location downstream of the work area if needed. The cofferdams would be constructed of gravel bags lined with a Visqueen plastic sheeting. The area of dewatering and location of cofferdams would be limited to the minimum amount necessary to complete the work, depending on the sites under construction and the construction year.

After access has been established, the eroding creek bank at each site would be cleared of surface vegetation and loose soil. An estimated 32 trees would require removal to complete the Project (see Table 2-1). These trees are dispersed throughout Sites 6 through 10 and comprise of a mix of native, non-native, and invasive species that help form the riparian canopy and mid-story. Care would be taken to minimize impacts on trees and other vegetation to the maximum extent practicable, including avoidance of root systems of trees that are not required to be removed. Removed native soils and vegetation would be hauled off-site for disposal, though some soils may be re-used at one or more of the 10 rehabilitation sites.

### 1.3.2 Bank Protection

Following site preparation, work crews would begin repair of the 10 erosional features. Generally, two bank rehabilitation treatments would be applied: rip-rap bank protection and sheet pile walls. Rip-rap bank protection involves the placement of large rocks or boulders along the bank to stabilize the bank, whereas sheet pile walls involve installation of vertical, metal walls to protect the bank from further erosion.

Valley Water evaluated the potential for more natural bank rehabilitation, such as through laying back the banks to establish a wider floodplain or by using bioengineered solutions (e.g., willow stakes); however,

these options were rejected due to the narrow width of the riparian corridor (constrained by adjacent development), steep existing creek banks, and the high flow velocities and shear stress in the channel.

Bank rehabilitation work is summarized by site in **Table 1**.

**Riprap Bank Rehabilitation**

Riprap bank rehabilitation would occur at Sites 1 through 4, 6, and 7. To install the riprap, an approximately 5-foot deep footing trench would be excavated along the toe of the bank and geotextile fabric would be placed over the excavated area. A rock filter backing layer (Backing No. 1, or approximately 75-pound rock) would be spread in a uniform layer over the geotextile fabric. Half-ton riprap (boulders) would then be laid on top of the backing layer along the slope to the specific depth, generally 5 feet thick. Riprap would typically extend to the 1% flood elevation, generally 10 feet above the bottom of the creek, to provide adequate bank protection while minimizing the amount of natural habitat impacted. Clean imported soil would be placed over the riprap on the re-established 1.5:1 embankment slope and compacted. Biodegradable erosion control with hydroseeding would be installed on top of the compacted earth backfill In some locations, the natural bank slope above the riprap would be laid back (i.e., made less steep) to a 1:1 to 1.5:1 slope in order to reduce the likelihood of erosion. Banks would be recontoured to match the adjacent bank slope (i.e., returned to pre-failure configuration) to the extent possible. Where bank rehabilitation work occurs adjacent to past repairs, riprap would be tied into the existing riprap in a manner that forms a seamless transition. Furthermore, in some locations, the repair work would involve minor shifts in the location of the low-flow channel, generally away from an erosional feature and back towards the center of the creek.

**Sheet Pile Wall Bank Protection**

Due to the narrow creek corridor and existing vertical nature of the bank failures, sheet pile wall bank protection would occur at Sites 5, 8, 9, and 10. At these sites, the bank would be protected by a metal sheet pile wall in front of (Sites 5 and 8) or pressed into (Sites 9 and 10) the eroding bank. The sheet pile walls would be delivered to the site by trucks in approximately 3-foot wide sections and stored in the staging area until ready for installation. The sheet pile wall would be hydraulically pressed (rather than driven) into the substrate with a silent piling system. At Sites 5 and 8, the sheet pile wall would be installed approximately 2 feet in front of the eroding vertical bank. Clean fill would be placed behind the wall (between the wall and the existing bank) and compacted. The wall at Site 8 would extend up to 6 feet below the top of the vertical bank and the bank behind the wall would be graded to a 1:5:1 slope or flatter and revegetated. At Sites 9 and 10, the sheet pile wall would be installed into the middle of the steep failing bank. Native soil and vegetation on the creek side of the wall would remain intact. An approximately 5- to 7-foot section of the wall would be exposed where the top of the bank meets the wall, and the slope above the wall would be laid back at a 1.5:1 slope and revegetated.

Site 9 also includes a sewer line that crosses over the creek, owned and managed by the City of Sunnyvale. At the request of Valley Water, the City of Sunnyvale plans to divert sewage elsewhere and therefore the pipe, utility bridge, and existing log revetment wall (protecting the existing west abutment) would be removed by Valley Water. This is considered a riparian enhancement through the removal of artificial fill and a potential pollutant source.

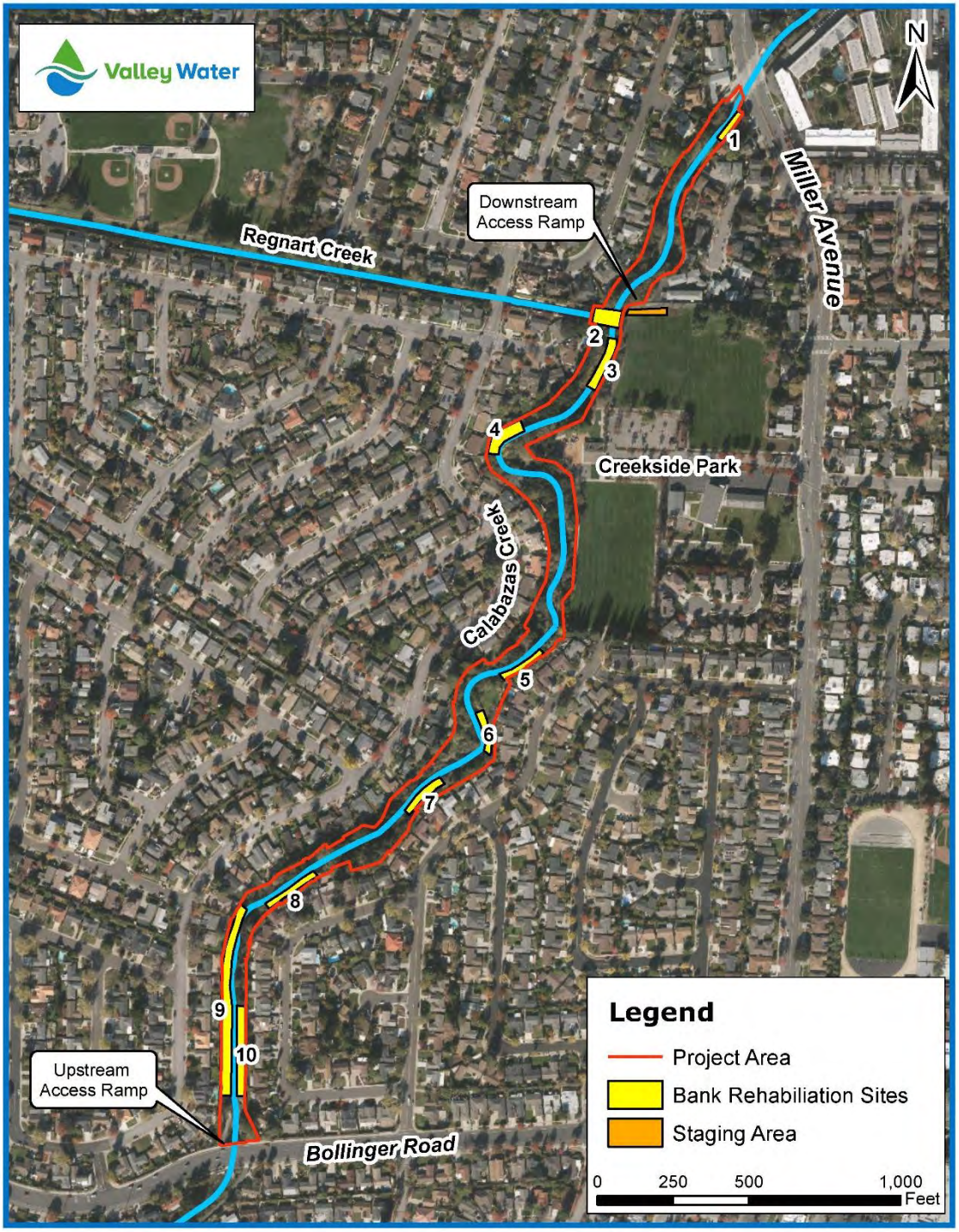


**Figure 2**
Bank Rehabilitation Sites

**Table 1. Summary of Work by Site**

| Site No. | Bank Location | Proposed Repair | Length of Repair (LF) | Approx. Work Area($ft^2$)[a] | # Trees Removed |
|---|---|---|---|---|---|
| 1 | East Bank | Replace 25-foot section of eroded concreted half-ton riprap, extend this concreted riprap an additional 10 feet upstream, add 20 linear feet of erosion control blanket upstream to create an appropriate transition, and realign the low-flow channel to the center of the creek. | 55 | 575 | - |
| 2 | Confluence of Regnart - Calabazas Creek | Repair the eroding dirt embankment (on upstream end of confluence) with soil, compact, and hydroseed. Replace eroded portion of the existing concrete drop structure and place half-ton riprap in the scour hole that has formed where Regnart Creek discharges. | 60 | 750 | - |
| 3 | East Bank | Use soil to fill the erosional/ void beneath an existing tree. Install half-ton riprap at the bank toe to help protect against future erosion. | 40 | 225 | - |
| 4 | West Bank | Erosion is occurring under a portion of bank previously fortified with sacked concrete. Excavate under sacked concrete where it is undermined and add one-ton riprap at toe. | 70 | 325 | - |
| 5 | East Bank | Install sheet pile retaining wall about 2 feet in front of near-vertical failing bank. Backfill with clean fill behind the wall and compact. | 130 | 675 | - |
| 6 | East Bank | Repair erosion with half-ton riprap at 1.5:1 slope up to 10 feet above the channel and resurface the slope up to top of bank. | 120 | 3,200 | 3 |
| 7 | East Bank | Remove debris from landslide. Repair erosional feature with half-ton riprap at 1.5:1 slope up to 10 feet above the channel and resurface the slope up to top of bank. | 90 | 2,150 | 2 |
| 8 | East Bank | Install sheet pile retaining wall about 2 feet in front of vertical failing bank. Backfill with clean fill behind the wall and compact. | 165 | 3,000 | 5 |
| 9 | West Bank | Install sheet pile retaining wall to stabilize the failing bank (leaving existing soil and vegetation on the creek side of the wall). Excavate and regrade soil behind sheet pile wall at 1.5:1 slope to the top of proposed bank. Remove existing wooden log reinforcement and existing sewer line utility bridge and concrete abutments. | 565 | 8,500 | 14 |
| 10 | East Bank (overlaps with Site 9) | Install sheet pile retaining wall to stabilize the failing bank (leaving existing soil and vegetation on the creek side of the wall). Excavate and regrade soil behind sheet pile wall at 1.5:1 slope to the top of proposed bank. | 260 | 3,950 | 8 |
| | | **Total** | **1,555 LF** | **23,350 $ft^2$ (0.54 acre)** | **32 trees** |

[a] These figures are approximate for the purpose of describing the Project activities and do not represent habitat impacts. See Table 3 in Section 4 for impacts to habitat.

### 1.3.3 Site Restoration and Revegetation

Following the bank rehabilitation work, the Project area would be restored to a natural, riparian habitat to the maximum extent practicable. Areas of temporarily disturbed natural substrate would be hydroseeded or revegetated. Bank slopes above the installed riprap would be vegetated with a mixture of native herbaceous riparian understory species.

At Sites 9 and 10, native riparian vegetation would be planted along the recontoured bank above the sheet pile walls, covering approximately 0.3 acre and 820 linear feet. Due to overhead electric utility lines, smaller stature trees such as California buckeye (*Aesculus californica*), elderberry (*Sambucus* sp.), and holly-leafed cherry (*Prunus ilicifolia*) would be planted near the bottom of the slope, with native herbaceous understory higher on the bank.

Following any disturbances from equipment access, the channel will be restored to its pre-construction contours to the maximum extent practicable. Post-construction Best Management Practices (BMPs) would be implemented and any unsuitable material would be removed from the Project site.

# Section 2. Methods

Our evaluation to determine if sensitive biological resources are present within or adjacent to the Project area consisted of the following. Prior to our field efforts, we conducted a desktop reconnaissance review of the existing information that was available. This was followed by multiple biological surveys throughout the Project area, including upstream and downstream of the Project area. Lastly, we used our findings on presence of sensitive biological resources and the Project's conservation measures to evaluate the Project's potential impacts on those resources.

## 2.1 Desktop Reconnaissance

As part of our background review we reviewed the following resources:

- California Native Plant Society (CNPS) Rare Plant Inventory using the 9-quad search function (CNPS 2018)
- Processed and unprocessed data layers of California Natural Diversity Database (CNDDB) using a search radius of 2 miles around the Project area (CDFW 2019a[1]; CDFW 2020)
- USFWS Information for Planning and Consultation tool (IPaC) (USFWS 2019a)
- eBird – online database of bird distribution and abundance (Cornell Lab of Ornithology 2019)
- Santa Clara County Breeding Bird Atlas (Bousman, W.G. 2007)
- Google Earth Timeline tool (Google Inc. 2019)
- Alert System – Stream Gauge Reports & Plots (Valley Water 2019)
- Various scientific literature

After we gathered all the available information and prior to our field surveys, we used our professional expertise to interpret, refine, and add to the results of our background review to help us determine the likelihood of occurrence of various sensitive biological resources in the Project area. See Sections 3.1 through 3.4.

## 2.2 Field Surveys

On November 05, 2018, Valley Water Senior Plant Ecologist Janell Hillman walked the entire Project area as well as each of the 10 proposed bank stabilization sites. These areas were assessed for the presence of special-status plant species with focus on the four special-status plant species identified during the desktop reconnaissance (See Section 3.2) and assessed for suitable habitat for rare species and sensitive natural communities. While a late season survey is not optimal for identification of rare plants, three of the four plant species identified as having potential for being present are perennial can be identified outside of the bloom period, based on our over 20-year experience working with these species. The fourth species, an annual species, was assessed for presence/absence based on the availability of suitable habitat, which would determine the need for future surveys within the bloom period of the species.

[1] The Methods and Results section of this BSA was drafted in 2019. After the project alternatives analysis and project description was completed in May of 2020, we reviewed CNDDB (CDFW 2020) and confirmed there were no new records within 2-miles of the Project area in the processed and unprocessed data layers prior to completing this BSA.

Valley Water Wildlife Biologist Shawn Lockwood conducted biological surveys to identify any special-status wildlife species or signs of their presence within the Project area on the following dates: November 05, 2018, November 15, 2018, March 26, 2019, and May 29, 2019. Meandering transects were walked throughout the Project area, frequently stopping to use binoculars to scan ahead and increase the likelihood of identifying elusive species from a distance before they sought cover. Trees were viewed with binoculars from numerous vantage points to increase line of sight to potential raptors nests or cavities that could provide owl nesting, falcon nesting, or bat roosting habitat. All structures that remotely resembled a woodrat lodge were closely inspected to determine if it was a woodrat lodge. All animal tracks along the creek banks were inspected to identify any signs of special-status species. Additionally, Mr. Lockwood conducted habitat assessments for various special-status species that are difficult to detect during visual encounter surveys.

# Section 3. Results

## 3.1 Environmental Setting

The Project reach of Calabazas Creek is within a narrow riparian corridor that is constrained by surrounding residential development and is defined by steeply incised banks and lack of in-stream emergent vegetation. This reach of Calabazas Creek is highly modified and disturbed, with some remnant native overstory vegetation and a sparse understory comprised almost entirely of exotic species. The creek channel banks are highly eroded in many locations, and the remnant riparian corridor is thin and narrow (ranging 50-100 feet in width) due to the encroachment from the adjacent residential area.

### 3.1.1 Land Covers

For the purposes of this BSA, land cover types are defined as the dominant character of the land surface as determined by vegetation, water, or human uses. The Project area, which totals approximately 10 acres, in contained within the riparian corridor along Calabazas Creek up to the residential fence lines between Miller Avenue and Bollinger Road. Within the riparian corridor we identified two land covers, Intermittent Streambed and Mixed Riparian Woodland, which are described below. The Project area is completely surrounded by an Urban-Suburban land cover.

<u>Intermittent Streambed</u>

Water flow in Calabazas Creek is typically concentrated in a single-thread, relatively low-gradient channel below the ordinary high-water mark (OHWM) elevation. The channel is largely unvegetated with a bed of cobble, gravel, and coarse sand. The surrounding riparian tree canopy shades much of the channel. There are areas of existing hardscape within the channel, including locations with existing bank protection (i.e., riprap, grouted riprap, and sacked concrete) and the concrete channel lining at the Bollinger Road and Miller Avenue bridges, each extending approximately 65 feet into the Project area. Regnart Creek flows into Calabazas Creek over a concrete apron and has concrete banks upstream of the apron. The Intermittent streambed in the Project area totals approximately 2.2. acres.

<u>Mixed Riparian Woodland (Coast Live Oak Woodland Alliance)</u>

Riparian habitat in the Project area is constrained by surrounding residential development and Creekside Park, and is defined by steeply incised banks and narrow upland areas above top of bank. The habitat is characterized as a Mixed Riparian Woodland dominated by many remnant and declining heritage-sized valley and coast live oaks (*Quercus lobata* and *Quercus agrifolia*), with a few large sycamores (*Platanus* racemosa) as well as a couple large nonnative trees including a *Eucalyptus* species. Understory shrubs are sparse and include buckeye, red elderberry, poison oak (*Toxicodendron diversilobum*), and some red willow (*Salix laevigata*), as well as nonnative *Acacia* sp. and giant reed (*Arundo donax*). There is no native herbaceous understory layer; the dominant species are nonnative and include English ivy (*Hedera helix*), with smilo grass (*Piptatherum milieaceum*) and scattered stinkwort (*Dittrichia graveolens*).

CDFW considers natural communities with State Ranks of S1-S3 to be sensitive. Using the Sawyer and Keeler-Wolf classification system we classified the Mixed Riparian Woodland in the Project area as a heavily invaded Coast Live Oak Woodland Alliance, a State Rank S4 natural community which is not considered to be sensitive by CDFW. There were no sensitive natural communities identified in the Project reach.

### 3.1.2 Hydrology

The Calabazas Creek Watershed is mostly urban and fed by storm drain systems. In the reach between Bollinger Road and Miller Avenue (i.e., Project area), there is approximately four-square-miles of drainage, with most of the area being urban and a small percentage in the low-density residential foothills. Regnant Creek, an urban drainage channel, confluences with Calabazas Creek just upstream of Miller Avenue (in the Project area), adding approximately two-square-miles of urbanized watershed. Channel degradation and incision has been noted and is ongoing throughout the Project area, which is a classic example of an urbanized stream with a starved sediment supply (J. Xu, pers. comm. 2019)[2].

The reach between Bollinger Road and Miller Avenue is ephemeral, only flowing briefly in direct response to precipitation events in the immediate vicinity. The channel is above the ground-water reservoir (Levick et. al. 2008). Stream gauges on Calabazas Creek indicate that the creek is dry most of the year, except for a few days after rain events. On average, the summer months between late April and November have no appreciable flows, only a small amount of leakage from storm drain systems. In the winter months, substantial flows occur which frequently reach over 100-cubic-feet-per-second at six-feet plus above grade. However, these flows recede quickly, usually within 24-hours (J. Xu, pers. comm. 2019; Valley Water 2019).

## 3.2 Special-status Plant Species

The CNPS search resulted in a list of 45 special-status plant species with potential to occur in the *Milpitas, California* USGS quadrangle and the eight surrounding quadrangles (Attachment A). After an analysis of the documented habitat requirements and occurrence records for each species, we eliminated 41 species because they are found in habitats not present in or suitable to the Project area. Species with some potential to occur at the site (via assessment using both the CNPS Inventory, and CNDDB) because of proximal documented occurrences include western leatherwood (*Dirca occidentalis;* CRPR 1B.2), with one recorded occurrence approximately four miles southwest of the Project area; Loma Prieta hoita (*Hoita strobilina*; CRPR 1B.1), with an occurrence far upstream of the Project area; arcuate bush mallow (*Malacothamnus arcuatus*; CRPR 1B.2), with an occurrence far upstream of the Project area; and woodland Monolopia (*Monolopia gracilens*; CRPR 1B.2), also with an occurrence far upstream of the Project area. These last three special-status plant species have documented occurrences in the Saratoga foothills, approximately 2.0-3.25 miles west/southwest of the Project site.

Loma Prieta hoita and arcuate bush mallow can be identified outside of the bloom period by an experienced botanist and were not noted in the Project area. Western leatherwood, found in riparian areas, is more difficult to identify outside of its winter bloom period; however, each of the bank stabilization sites were carefully searched for this species and it was not found; also, the habitat is so highly modified and disturbed in this reach of Calabazas Creek there is virtually little to no potential for this species to be present within the proposed work areas. There was no suitable habitat for woodland monolopia in the Project area. No other special-status plants were identified during the survey and future rare plant surveys are not recommended. **Special-status plants are considered to be absent within the Project area.**

## 3.3 Special-status Fish and Wildlife Species

The CNDDB search resulted in a list of three wildlife "special animal[3]" species within two miles of the Project areas (CDFW 2019a; CDFW 2020). The USFWS IPAC System report generated a list of eight fish and wildlife species that are federally listed (Attachment B). In addition, we added eight wildlife species, including an ecological guild called "common raptors", that did not return from the sources above. These species are either known to occur or have a potential to occur on the valley floor in Santa Clara County. Common raptors are not typically considered "special-status species"; however, since their nests are protected year-round under California Fish and Game Code 3503.5, from a Project standpoint we included them.

This resulted in a total list of 18 fish and wildlife species that were evaluated for their potential to occur within the Project area. In Sections 3.3.1 – 3.3.7 below, we discuss the six species and one ecological guild that were determined to either be present or have a likelihood of presence in the Project area. Our findings on occurrence for all 18 of the special-status species are summarized in T**able 2** in Section 3.4. **Table 2** includes our rationale for determining absence for the other 11 species.

The Project area does not intersect any Critical Habitat units for federally listed species.

### 3.3.1 Common Raptor Species

Several species of raptors that nest in riparian habitats but are not special-status species are fairly common to common breeders on the valley floor (i.e., the Project area). Because raptor nests are protected year-round under CFGC 3503.5, they are included in this discussion of special status wildlife species.

We identified a raptor/corvid sized nest outside of the nesting season in November 2018. We conducted an additional survey during the nesting season in March 2019 and observed a prey delivery to the nest by a male Cooper's hawk (*Accipiter cooperii)*, positively identifying it as a Cooper's hawk nest.

We do not suspect that other raptors are nesting in the Project area because we did not observe any cavities or stick nests large enough to be used by raptors for nesting. Western screech owl (*Megascops kennicottii*), barn owl (*Tyto alba*), and American kestrel (*Falco sparverius)* are cavity nesters that have potential to nest in the general area. However, we did not find any cavities in the Project area large enough to support nesting and these species do not create (i.e., excavate) cavities. The likelihood of cavities being created by woodpeckers or limb failures exposing cavities and then being found by these species prior to or during Project construction is considered to be low.

Great-horned owls (*Bubo virginianus*) have potential to nest in the general area. This species does not build its own nests, but relies on used nests (e.g., hawk and raven nests), snags or broken trees with suitable sized cavities, or manmade structures. We did not identify any suitable nesting locations for great-horned owls within the Project area during our surveys. Therefore, the likelihood of great-horned owls nesting in the Project area prior to or during Project construction is considered low.

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[3] "Special Animals" is a broad term used to refer to all the animal taxa tracked by CDFW's CNDDB, regardless of their legal or protection status (CDFW 2019c).

Red-tailed hawks (*Buteo jamaicensis*) have potential to nest in the general area. In Santa Clara County, red-tailed hawks are considered sedentary and likely remain on their territories year-round (Bousman 2007); however, they were not detected during any of our surveys. In addition. there are only two large trees (one eucalyptus tree with the Cooper's hawk nest and one redwood) within the Project area, which could provide elevated sites for nesting of this species (i.e. we deemed suitable as nest sites). Because we did not detect this species or historic nests during our surveys and since there are only two trees tall enough to serve as potential nesting locations, nest establishment in the Project area prior to or during the Project is considered unlikely.

Red-shouldered hawks (*Buteo lineatus*) are considered to be fairly common in Santa Clara County (Bousman 2016). They mostly nest in riparian and oak woodlands but can also nest in suburban areas (Dykstra et al. 2008; S. Lockwood pers. obs.). There are numerous trees in the Project area large enough to support nesting by this species. In Santa Clara County, red-shouldered hawks are likely on their territory year-round and are easily detected due to their conspicuous vocal behaviors (Bousman 2007). We did not detect this species or historic nests during our surveys. Because this species builds its own nests and there are suitable nesting locations (i.e., oak trees of appropriate size), we consider the likelihood of red-shoulder hawks establishing a nest in the Project area prior to or during the work to be low-to-moderate.

**Common raptor species are considered present as breeders within or adjacent to the Project area.**

### 3.3.2 Yellow Warbler

Yellow warbler (*Setophaga petechia;* CSSC when nesting*)* was not observed during the surveys performed for this BSA. Early observers in Santa Clara County considered yellow warbler to be a common-to-abundant summer resident (Barlow 1900; Grinnell & Wythe 1927). A decline in breeding yellow warbler has been observed in Santa Clara County since the 1970s (Bousman 2007). This trend appears to be widespread on the central coast, with declines also noted in Monterey and Alameda counties (Roberson and Tenney 1993; Richmond et. al. 2011). Currently, yellow warbler is considered to be uncommon summer resident in the county (Bousman 2016). Our literature review showed that the preferred nesting habitat for yellow warbler is multi-story riparian habitats with dense understory. On the valley floor in Santa Clara County, yellow warbler has been documented nesting along riparian corridors, often with a mature overstory of cottonwoods and sycamores, a midstory of willow and box elder, and a substantial shrub understory of vines, blackberries, and forbs (Bousman 2007). We assessed the riparian habitat onsite and determined that due to the lack of riparian habitat complexity (midstory and dense understory is absent), suitable nesting habitat is absent within the Project area. However, this species may seasonally forage or be found in the Project area as a summer resident or an itinerant migrant. Because of these factors, **yellow warbler is considered absent as a breeder within the Project area.**

### 3.3.3 Yellow-breasted Chat

Yellow-breasted chat (*Icteria virens*; CSSC when nesting*)* was not observed during the surveys performed for this BSA. Historically fairly common in Santa Clara County, the yellow-breasted chat is now considered to be very rare in the county (Bousman 2016) and is only found breeding in scattered riparian locations in the Diablo Range in southern portions of the county (Bousman 2007). This decline appears to be statewide (Shuford & Gardali. 2008). Our literature review showed that yellow-breasted chat utilizes a variety of nesting habitats (multi-overstory, no overstory, etc.) which have dense understories. We assessed the riparian habitat onsite and determined that due to the lack of a dense understory, suitable nesting habitat is absent within the Project area. However, this species may seasonally forage or be found in the Project

area as a summer resident or an itinerant migrant. Because of these factors, **yellow-breasted chat is considered absent as a breeder within the Project area.**

### 3.3.4 Western Red Bat

No bats or sign of their presence was observed during the surveys performed for this BSA. We reviewed the ecology of the western red bat (*Lasiurus blossevillii*; CSSC & WBWG-H*)*, a migratory and typically solitary foliage roosting species. Western red bat is not known to raise young in Santa Clara County (D. Johnston, pers. comm. 2019; Johnston; D. S., and S. Whitford. 2009) and is considered absent as a maternity rooster. This migratory species is known to overwinter in the San Francisco Bay Area, generally present from November to February (Johnston, D. S., and S. Whitford. 2009; Cryan, P. M., 2003). Local bat biologists' impressions are that this species is usually not present in the central coast during summer; however, recently there have been some auditory detections of the species between May and July. Because the species is not known to breed in the county and there is some evidence that sexes move to different areas in spring and summer it is presumed that low numbers of males, most of which are probably itinerant migrants, can be found in central coast in late spring and summer (J. Watson, pers. Comm. 2020). Because this species is usually not present in spring and summer in the county, during Project construction (i.e., May 1 – October 15) **western red bat is considered Unlikely Present.**

### 3.3.5 Townsend's Big-eared Bat

No bats or sign of their presence was observed during the surveys performed for this BSA. Townsend's big-eared bat (*Corynorhinus townsendii*; CSSC & WBWG-H*)* is a cave-dwelling species, but is also known to use old, mostly-abandoned buildings with darkened and enclosed cave-like attics in addition to other anthropogenic structures (Barbour and Davis 1969). There are 11 CNDDB records for this species in the county. Five of the accounts were historic collections (1933–1966). Two of these historic records were documented as being collected in man-made structures and the other three did not have documented roosting locations. The remaining six records are recent (2000 – 2009) and were documented roosting in man-made structures. There are no records of Townsend's big-eared bat within 5 miles of the Project area. We did not identify structures in or immediately adjacent to the Project area that could be considered suitable roosting locations for Townsend's big-eared bat. However, this species may forage at night in the Project area. Because of these factors, **Townsend's big-eared bat is considered absent as a rooster within the Project area.**

### 3.3.6 Pallid Bat

No bats or sign of their presence was observed during the surveys performed for this BSA. Pallid bat (*Antrozous pallidus*; CSSC & WBWG-H*)* has been recorded roosting in a variety of structures including rock cracks and crevices, caves, buildings, bridges, and tree cavities (Baker et al. 2008, Hermanson & O'Shea 1983; O'Shea and Vaughan 1977). However, most often this species uses crevices and cracks in rocks or secondarily human structures throughout its range (Barbour and Davis 1969). There are 13 CNDDB records for this species in the county. Seven of the accounts were historic collections (1937–1956) where no roosting habitat was described. The other six records are recent (2004 – 2011) and were documented roosting in man-made structures. There are no records of pallid bat within 5 miles of the Project area. We did not identify structures in or immediately adjacent to the Project area that could be considered suitable roosting locations for pallid bat. However, this species may forage at night in the Project area. Because of these factors, **pallid bat is considered absent as a rooster within the Project area.**

### 3.3.7 San Francisco Dusky-footed Woodrat

Numerous San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*; CSSC*)* lodges were observed during the surveys performed for this BSA**. San Francisco dusky-footed woodrats are present within the Project area.**

## 3.4 Special-status Species Summary

The results of our CNDDB query with the locations of occurrences are depicted, relative to the Project area, in **Figure 3**. Results pertaining to 22 special-status plant, fish, and wildlife species, their status, habitat descriptions, and our findings on potential for occurrence within the Project area are summarized in **Table 2**.

**Figure 3**
CNDDB Occurrences

**Table 2: Special-status Species, Their Status, Habitat Description, and Potential for Occurrence Within or near the Project Area**

| Names[a] | Status[b] | Habitat | Potential for Occurrence in the Project Area |
|---|---|---|---|
| **PLANTS** | | | |
| western leatherwood[1,4] (*Dirca occidentalis)* | CRPR 1B.2 | Broad-leafed upland forest, Closed-cone coniferous forest, Chaparral, Cismontane woodland, North Coast coniferous forest, Riparian forest, Riparian woodland; mesic areas | **Absent**; Not observed in Project area by Qualified Plant Ecologist. |
| Loma Prieta hoita[1,4] (*Hoita strobilina)* | CRPR 1B.1 | Chaparral, Cismontane woodland, Riparian woodland; usually serpentinite or mesic areas | **Absent**; Not observed in Project area by Qualified Plant Ecologist. |
| arcuate bush-mallow[1,4] (*Malacothamnus arcuatus)* | CRPR 1B.2 | Chaparral, Cismontane woodland | **Absent**; Not observed in Project area by Qualified Plant Ecologist. |
| woodland Monolopia[1,4] (*Monolopia gracilens)* | CRPR 1B.2 | Serpentine, Broad-leafed upland forests (openings), Cismontane woodland, valley and foothill grassland | **Absent**; Qualified Plant Ecologist determined that there is no suitable habitat in the Project area. |

| Names[a] | Status[b] | Habitat | Potential for Occurrence in the Project Area |
|---|---|---|---|
| **INSECTS** | | | |
| bay checkerspot butterfly[3] *(Euphydryas editha bayensis)* | FT | Serpentine grasslands | **Absent;** Species inhabits serpentine grasslands that are not present in or immediately adjacent to the Project area. The Project does not intersect any of the populations or "habitat units" that are well known and monitored within the county (ICF 2012). |
| San Bruno elfin butterfly[3] (Callophrys mossii bayensis) | FE | Coastal grasslands and low scrub of north-facing slopes within the fog belt where the larval host plant grows | **Absent;** Species is restricted to San Mateo County (USFWS 2019b). |
| **FISH** | | | |
| delta smelt[3] *(Hypomesus transpacificus)* | FT; SE | Estuaries in the Sacramento-San Joaquin Delta; Seasonally in Suisun bay, Carquinez Straight and San Pablo Bay | **Absent;** Project area is outside of the species known range (CDFW 2019b; USFWS 2017). |
| **AMPHIBIANS** | | | |
| California tiger salamander[3] (*Ambystoma californiense*) | FT; ST | Temporary or perennial pools and surrounding uplands in annual grasslands or open woodlands | **Absent**; Our analysis of known locality records in CNDDB reveals that the species has disappeared from the valley floor in northern Santa Clara County (CDFW 2019a; CDFW 2020) and is likely extirpated in these areas due to the massive conversion of open habitats and rural/agricultural land uses to urban hardscape (H.T. Harvey 1997a; ICF 2012). In addition, riparian habitat (i.e., the Project area) is not suitable habitat for this species. |

| Names[a] | Status[b] | Habitat | Potential for Occurrence in the Project Area |
|---|---|---|---|
| California red-legged frog[3] *(Rana draytonii;* CRLF*)* | FT; CSSC | Streams, freshwater pools, and ponds with emergent or overhanging vegetation and surrounding uplands | **Absent**; Our review of known locality records in CNDDB revealed that there are no known occurrences on the valley floor in the northern portion of the county (i.e., Project area), only records in the surrounding foothills and mountains (CDFW 2019a; CDFW 2020). Determining factors that preclude CRLF breeding within the Project area include: the ephemeral creek's extremely flashy water regime (i.e. only holding water a few days on average after rain events before drying) does not sustain the needed hydroperiod for CRLF breeding; absence of pools with appropriate depths that retain water long enough to support CRLF breeding when the remainder of the creek is dry; and, absence of emergent vegetation needed for attachment of egg masses. Contributing in-stream conditions that limit aquatic habitat suitability for non-breeding CRLF include: substantial storm flows (frequently over 100-cubic-feet-per-second at +6 feet above bottom grade); the acute ephemeral nature of the creek (short-lived hydroperiods), lack of off-channel refugia to provide habitat during substantial flows; and, the lack of emergent vegetation combined with long shallow runs yielding substantial risk of predation for CRLF for the brief periods when flows are present and not substantial. Use of upland habitat by CRLF is strongly correlated with the proximity of suitable aquatic habitat, which is absent. Additional contributing factors include the meager widths of the riparian corridor (~50-100 feet) combined with deeply incised vertical banks and the surrounding areas are completely built out for residential land uses. The closest record is on Calabazas Creek in the eastern foothills of the Santa Cruz Mountains (Occurrence # 961). This record is ~3.6 overland miles from the Project area, through the urban and residential areas. The in-stream distance to this record is ~4.8 miles upstream of the Project area. This record is far outside the 1-mile search radius provided as a general guideline by USFWS when performing site assessments for CRLF (USFWS 2005). Additionally, this record is more than double the distance of the furthest long-distance movements (1.74 – 2.24 miles) that have been recorded by CLRF (Bulger 1998; Bulger *et al.* 2003; Fellers and Kleeman 2007; Rathbun *et al.* 1993). Because of these factors, CRLF is considered absent within the Project area. Furthermore, two independent CRLF assessments support this finding: 1.) In 2007, a protocol-level habitat assessment for CRLF was performed along Calabazas Creek between Miller Avenue and Comer Drive, which included the Project area. The habitat assessment concluded that this portion of Calabazas Creek does not provide Ranid frog breeding habitat, would not be used by migrating CRLF, and that CRLF are not expected in this portion of Calabazas Creek (ESA. 2007); and, 2.) Analysis of known locality records for CRLF from Santa Clara County reveals that the species has essentially disappeared from the urbanized lowland areas of the county (H.T. Harvey and Associates. 1997b; ICF 2012). |

| Names[a] | Status[b] | Habitat | Potential for Occurrence in the Project Area |
|---|---|---|---|
| **REPTILES** | | | |
| western pond turtle[4] *(Actinemys marmorata pallida;* WPT*)* | CSSC | Ponds, lakes, perennial and intermittent streams, and wetlands with vegetation, basking habitat, and upland areas for reproduction | **Absent;** Contributing in-stream conditions that limit aquatic habitat suitability include: water is absent most of the year, water is only present for brief periods after rain events due to the hydrology (swift dry-back rates) of the creek, some rain events result in substantial storm flows (frequently over 100-cubic-feet-per-second at +6 feet above bottom grade); lack of off-channel refugia to provide habitat during extreme storm flows; lack of optimal in-stream habitat features for the brief periods when flows are present and not substantial; and, the lack of emergent vegetation combined with long shallow runs yielding substantial risk of predation for WPT for the brief periods when flows are present and not substantial. Use of upland habitat by WPT is strongly correlated with the proximity of suitable aquatic habitat, which is absent. Additional contributing factors include the meager widths of the riparian corridor (~50-100 feet) combined with deeply incised vertical banks and the surrounding areas are completely built out for residential land uses. Because WPT are not expected to occur within the habitats onsite, the primary concern of impacting WPT would come from an itinerant turtle moving through the Project area. There are no records of WPT in Calabazas Creek in the processed and unprocessed data layers in CNNDB (CDFW 2019a; CDFW 2020). The closest record of WPT is more than five overland miles away (Occ # 175 at Vasona Lake). Development impediments make migration between this site and the Project area impossible. Because of these factors, WPT is considered absent within the Project area. |
| **BIRDS** | | | |
| California Ridgway's rail[3] (*Rallus obsoletus obsoletus*) | FE; SE | Saltwater and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay | **Absent;** Project area is outside of the species known range (CDFW 2014; USFWS 2013). |

| Names[a] | Status[b] | Habitat | Potential for Occurrence in the Project Area |
|---|---|---|---|
| California least tern[3] *(Sterna antillarum browni*) | FE; SE | Nests along the coasts from San Francisco to northern Baja in sparsely vegetated, flat substrates such as sand beaches, alkali flats, and levee roads | **Absent;** Project area is outside of the species known range (CDFW 2014; USFWS 2013). |
| marbled murrelet[3] *(Brachyramphus marmoratus)* | FT; SE | Forests that primarily include typical old-growth forests, but also use mature forests with an old-growth component. | **Absent;** Project area is outside of the species known range (USFWS 1997). |
| western burrowing owl[2] *(Athene cunicularia)* | CSSC | Open sparsely vegetated areas with mammal burrows | **Absent;** The Project area is completely surrounded by residential and urban land uses and this species does not use riparian habitats (i.e., the Project area). |
| white-tailed kite[4] *(Elanus leucurus)* | FP; CFGC | Nest high in dense tree stands near foraging habitat. Forage in open grasslands, meadows, agricultural, and marsh habitats | **Absent**; Potential nesting substrates are present, but the adjacent foraging habitat required for nesting is absent. |
| common raptor species[2,4] | CFGC | Nest in a wide array of habitats including riparian areas, woodlands, and residential areas | **Present as Breeder**; A Cooper's hawk nest is present in the Project area**.** Suitable breeding habitat is present in the Project area for other common raptors species. |

| Names[a] | Status[b] | Habitat | Potential for Occurrence in the Project Area |
|---|---|---|---|
| yellow warbler[4] *(Setophaga petechia)* | CSSC | Nest in multi-story riparian habitats with dense understories | **Absent as Breeder**; Project area lacks multi-story riparian habitats with dense understory which is used for nesting by the species. Species may forage within the Project area as summer resident or itinerant migrant. |
| yellow-breasted chat[4] *(Icteria virens)* | CSSC | Nest in riparian or open habitats with dense understories | **Absent as Breeder**; Project area lacks dense understory which is used for nesting by the species. Species may forage within the Project area as summer resident or itinerant migrant. |
| **MAMMALS** | | | |
| western red bat[4] *(Lasiurus blossevillii)* | CSSC; WBWG-H | Roosts primarily in trees, less often shrubs. Roost sites often in edge habitats | **Unlikely Present;** Migratory species that is not known to raise young in Santa Clara County. Overwinters in the county generally from November to February. In general, this species is not found in the central coast in summer, but low numbers of this species (presumably males and mostly itinerant migrants) have been detected in late spring and summer so it is possible but unlikely for the species to be present when the work is occurring (i.e., May 1 – October 15). |
| Townsend's big-eared bat[4] *(Corynorhinus townsendii)* | CSSC; WBWG-H | Roosts in caves, mines, tunnels, buildings, or other human-made structures | **Absent as Rooster;** No potential roosting structures or bat sign (i.e., guano, urine stains, or prey remains) was observed in or adjacent to the Project area. |
| pallid bat[4] *(Antrozous pallidus)* | CSSC; WBWG-H | Roosts in rock cracks and crevices, caves, buildings, bridges, and tree cavities | **Absent as Rooster;** No potential roosting structures or bat sign (i.e., guano, urine stains, or prey remains) was observed in or adjacent to the Project area. |

| Names[a] | Status[b] | Habitat | Potential for Occurrence in the Project Area |
|---|---|---|---|
| San Francisco dusky-footed woodrat[2,4] (*Neotoma fuscipes annectens*) | CSSC | Riparian and woodland habitats. | **Present;** Woodrat lodges are present in the Project area. |

[a] Key to Sources: 1 = CNPS Inventory of Rare and Endangered Plants database; 2 = CNDDB 2-mile Query; 3 = USFWS IPAC System; 4 = Valley Water

[b] Key to Status Abbreviations: CFGC = California Fish and Game Code 3503.5; CRPR = California Rare Plant Rank; CSSC = California Species of Special Concern; FP = Fully Protected; SE= State Endangered; ST = State Threatened; FE = Federally Endangered; FT = Federally Threatened; WBWG-H = Western Bat Working Group High Priority

# Section 4. Analysis

Below we summarize the Project impacts, describe the Project's conservation measures, and evaluate potential impacts to sensitive biological resources.

## 4.1 Impacts

A summary of the Project's impacts is provided in **Table 3** and **Table 4** below. In addition, at least one San Francisco dusky-footed woodrat lodge, a California Species of Special Concern, would need to be relocated out of the work area.

**Table 3: Summary of Impacts to Riparian Habitat**

| Site | Intermittent Stream | | Mixed Riparian Woodland | |
|---|---|---|---|---|
| | Permanent ($ft^2$) | Temporary ($ft^2$) | Permanent ($ft^2$) | Temporary ($ft^2$) |
| 1 | - | - | 176 | - [b] |
| 2 | 278 | 363 | 51 | 44 |
| 3 | 156 | - | 74 | - |
| 4 | 323 | - | - | - |
| 5 | - | - | 331 | 340 |
| 6 | - | - | 1,522 | 166 |
| 7 | - | - | 976 | 534 |
| 8 | - | - | 453 | 2,197 |
| 9 | - | - | - | 8,539 |
| 10 | - | - | - | 3,937 |
| Equipment Access | - | 95,832[a] | - | - |
| Cofferdam | - | 130 | - | - |
| **Total** | **757 $ft^2$ (0.02 acre)** | **96,325 $ft^2$ (2.21 acre)[c]** | **3,583 $ft^2$ (0.08 acre)** | **15,757 $ft^2$ (0.36 acre)** |

[a] - This amount includes the entire creek corridor in the Project area and would occur from equipment moving through the dry streambed. Actual temporary impact limits from equipment access are expected to be substantially lower.. The stream channel would be restored to pre-Project contours and conditions at the conclusion of work.

[b] - The Project would replace 399 square feet of existing grouted riprap, but this is not counted as part of the impact total.

[c] - If equipment access is not included in the temporary impact total, the temporary impact would be 493 square feet (0.01 acre)

**Table 4: Estimated Riparian Tree Removals**

| Species | DBH (inches) | Number of Trees Removed |
|---|---|---|
| **Coast Live Oak and Valley Oak** | >2 - 6 | 3 |
| | >6 – 12 | 4 |
| | >12 – 18 | 3 |
| | >18 - 24 | 1 |
| | >24 – 30 | 4 |
| | >30 | 1 |
| | *Subtotal* | *16* |
| **California buckeye** | >2 - 6 | 1 |
| | >6 – 12 | 1 |
| | *Subtotal* | *2* |
| **Non-native (Holly oak, Monterey Pine, black walnut, and ornamental trees)** | >2 - 6 | 3 |
| | >6 – 12 | 3 |
| | >12 – 18 | 1 |
| | >18 - 24 | - |
| | >24 – 30 | 2 |
| | >30 | 1 |
| | *Subtotal* | *10* |
| **Invasive (tree of heaven)** | >2 - 6 | - |
| | >6 – 12 | - |
| | >12 – 18 | 3 |
| | >24 – 30 | - |
| | >30 | 1 |
| | *Subtotal* | *4* |
| | **Total** | **32** |

Detailed information about the Project's impacts can be found in the Project's CEQA MND and biological resource permit applications.

## 4.2 Project Conservation Measures

To completely avoid or help reduce impacts to sensitive biological resources, the Project will implement Valley Water BMPs, adhere to the conditions prescribed in the biological resource permits, and implement mitigation measures prescribed in the Project's CEQA MND.

### 4.2.1 Valley Water BMPs

The Project would implement the following BMPs to avoid or reduce potential impacts on biological resources[4]:

- AQ-1: Use Dust Control Measures
- AQ-2: Avoid Stockpiling Odorous Materials
- AQ-3: Reduce Construction-related $NO_X$ Emissions
- BI-1: Remove Temporary Fill
- BI-2: Avoid Migratory Birds Impacts to Nesting
- BI-3: Avoid Migratory Birds Impacts to Nesting from Pending Construction
- BI-4: Choose Local Ecotypes of Native Plants and Appropriate Erosion-Control Seed Mixes
- BI-5: Restore Riffle/Pool Configuration of Channel Bottom
- BI-6: Avoid Animal Entry and Entrapment
- BI-7: Minimize Predator-Attraction
- BI-9: Minimize Spread of Invasive Plants
- HM-1: Comply with All Pesticide Application Restrictions and Policies
- HM-2: Comply with All Pesticide Usage Requirements
- HM-3: Comply with Restrictions on Herbicide Use in Aquatic Areas
- HM-4: Restrict Vehicle and Equipment Cleaning to Appropriate Locations
- HM-5: Ensure Proper Vehicle and Equipment Fueling and Maintenance
- HM-6: Ensure Proper Hazardous Materials Management
- HM-7: Utilize Spill Prevention Measures
- HM-8: Incorporate Fire Prevention Measures
- WQ-1: Limit Impact of Pump and Generator Operation and Maintenance
- WQ-2: Limit Impacts from Staging and Stockpiling Materials
- WQ-3: Use Seeding for Erosion Control, Weed Suppression, and Site Improvement
- WQ-4: Maintain Clean Conditions at Work Sites
- WQ-5: Manage Drilling Materials
- WQ-6: Protect Groundwater from Contaminates via Drilling
- WQ-7: Prevent Water Pollution
- WQ-10: Prevent Stormwater Pollution
- WQ-11: Manage Sanitary and Septic Waste

Detailed descriptions of the BMPs listed above are provided in **Attachment C**.

### 4.2.2 Biological Resource Permit Conditions

The Project includes work within waters of the United States, waters of the State, and riparian habitat. Therefore, the project will be acquiring the following permits to work in these jurisdictional areas:

- A Nationwide Permit or an Individual Permit under Section 404 of the Clean Water Act from the Army Corps of Engineers

[4] BMPs listed in this BSA are applicable to biological resources. BMPs for cultural resources and traffic, for example, are not listed here.

- A Water Quality Certification under Section 401 of the Clean Water Act from the San Francisco Bay Regional Water Quality Control Board
- A Streambed Alteration Agreement (SAA) under California Fish and Game Code Section 1600-1606 from CDFW

All three of these permits prescribe conditions to protect jurisdictional waters and habitats and will require mitigation to offset impacts to these jurisdictional areas. In addition to being responsible for the protection and conservation of sensitive habitats, CDFW is also responsible for the protection and conservation of many of the State's fish and wildlife species. Therefore, the SAA also prescribes conditions to protect nesting birds, bats, and special-status species.

The Project will adhere to the conditions prescribed in these permits and Valley Water will confer and agree with the agencies on appropriate mitigation to offset Project impacts to jurisdictional areas prior to permit issuance.

### 4.2.3 CEQA MND Biological Resources Mitigation Measures

Valley Water is preparing a MND for the Project to evaluate and disclose the environmental effects of the Project under CEQA. This BSA is intended to support that evaluation, specifically the biological resources section of the MND. We are currently working with Valley Water Environmental Planner Alex Hunt on this section of the MND, including the creation of Mitigation Measures for Project impacts to biological resources that Valley Water BMPs and biological resource permit conditions are not sufficient alone to reduce impacts to less than significant levels (See Section 4.3.3).

## 4.3 Impact Analysis of Sensitive Biological Resources

Below we discuss our analysis of the Project's potential impacts on sensitive biological resources.

### 4.3.1 No Impact

Of the 22 species evaluated, 15 species were determined to be absent (See **Table 2**) within the Project area. Therefore, no impacts to the following 15 species area anticipated: western leatherwood; Loma Preita hoita; arcuate bush-mallow; woodland Monolopia; bay checkerspot butterfly; San Bruno elfin butterfly; delta smelt; California tiger salamander; California red-legged frog; western pond turtle; Ridgway's rail; California least tern; marbled murrelet; western burrowing owl; and, white-tailed kite.

Yellow warbler and yellow-breasted chat were determined to be absent as breeders, but they may forage in the Project area as summer residents or itinerant migrants. These species are only considered to be California Species of Special Concern when they are nesting and no impacts to them as nesters are expected.

Townsend's big-eared bat and pallid bat were determined to absent as roosters, but they may forage in the Project area at night. Because the work would be occurring during the day and no roost sites are present in the Project area, impacts to these species are not expected.

### 4.3.2 Less Than Significant

Temporary impacts to the intermittent streambed of Calabazas Creek would occur from the temporary placement of fill during ground disturbing activities, movement of equipment through the channel, and dewatering of the channel during construction if needed. The Project would implement Valley Water BMPs BI-1 and BI-5 and comply with the applicable permit conditions so that the temporarily impacted portions of Calabazas Creek, below the OHWM, would be restored to pre-Project contours and conditions at the completion of work. Therefore, temporary impacts to the intermittent streambed are considered to be less than significant.

Several species of common birds (i.e., not special-status species or raptors) are presumed to nest in the Project area annually. Due to the seasonal work windows prescribed by the biological resource permits, Project work would be occurring throughout the nesting season. The Project would implement Valley Water BMP BI-2 and adhere to the SAA conditions pertaining to nesting birds. CDFW-Approved Qualified Biologists would conduct nesting bird surveys prior to and throughout the nesting season as necessary to identify active nests and install appropriate no-work buffer zones around them so that the nests are not impacted (i.e., destroyed or abandoned). Therefore, impacts to nesting birds are considered to be less than significant.

We identified an active Cooper's hawk nest in one out of the two large stature trees present in the Project area, a *Eucalyptus* species. This species can reuse nests and it is likely that this pair will nest at this location during Project construction. The nest tree itself will not be impacted by the Project. The Project would implement Valley Water BMP BI-2 and adhere to the SAA conditions pertaining to nesting birds. CDFW-Approved Qualified Biologists would conduct nesting bird surveys prior to and throughout the nesting season as necessary to determine whether the nest is active and install appropriate no-work buffer zones (larger for raptors) to ensure the nest is not impacted. Although considered unlikely, if other common raptor species were to establish new nests in the Project area prior to or during the work, the Project would adhere to the same conservation measures described above. If a raptor nest were established in a tree that is to be removed by the Project, the removal of the tree and any work within the no-work buffer zone would not occur until the nest is inactive. In addition, because raptor nests are protected year-round under California Fish and Game Code Section 3503.5, prior to removal of any trees with a raptor nest, Valley Water would first request permission from CDFW to dismantle the nest. Therefore, impacts to nesting common raptors are considered to be less than significant.

#### 4.3.3 Less Than Significant With Mitigation Incorporated

Permanent impacts to the intermittent streambed, temporary and permanent impacts to riparian habitat, potential impacts to roosting western red bat(s), and impacts to San Francisco dusky-footed woodrat(s) will require Mitigation Measures to reduce impacts to less than significant levels (i.e., Valley Water BMPS and permit conditions are not sufficient alone to do so). The Valley Water Environmental Planner who is developing the Project's CEQA MND concurred that Mitigation Measures for these biological resources are warranted. We worked together with the Environmental Planner to develop the parameters below, which will be incorporated into Mitigation Measures in the CEQA MND. The exact language and specifics (e.g., impacts-to-mitigation ratios) of the Mitigation Measures will be refined through the public comment period of the CEQA MND and through negotiations with the permitting agencies.

The Project will result in temporary and permanent impacts to riparian habitat, including permanent impacts to the intermittent streambed. To ensure there is no net loss in riparian functions and services and to ensure these impacts are reduced to less than significant levels, we recommend the following parameters be developed into a Mitigation Measure to restore and/or enhance riparian habitat:

- Valley Water develops appropriate mitigation-to-impact ratios for temporary and permanent impacts to riparian habitat in agreement with the permitting agencies.
- Valley Water develops a Mitigation and Monitoring Plan (MMP) for impacts to riparian habitat that details mitigation actions necessary to ensure the mitigation ratios are being met.
- The MMP would include success criteria, as agreed upon by the permitting agencies, and adaptive management guidelines for actions to be taken if the success criteria are not met. Monitoring would be required to assess progress of the restoration and/or enhancement

actions according to the success criteria. If progress is not satisfactory, adaptive management actions (including replanting, nonnative species removal, etc.) could be implemented. The MMP would remain in force until the success criteria are met.

- The MMP would identify a suite of on-site mitigation actions to ensure the impacts are fully mitigated. The primary recommended mitigation action is the planting of 55 native riparian trees at Sites 9 and 10. Other possible mitigation actions include the removal of invasive plant species (e.g., giant reed, English ivy, and bamboo) allowing for active or passive re-vegetation of these area with native species and the removal of the sewer pipe at Site 9.

The Project could result in impacts to roosting western red bats. Western red bats are considered to be unlikely present when the work would be occurring. In general, this species is not found in the central coast in summer. However, low numbers of this species (presumably itinerant migrant males) have been detected in late spring and summer, so their presence as day roosters in the Project area when work is occurring is possible. This species is not known to raise young in Santa Clara County and is a typically solitary foliage roosting species (i.e., not a colonial roosting species) which tend to have low roost site fidelity; therefore, due to the seasonality of the work and ecology of the species, significant impacts such as impacts to maternity and/or colonial roost sites would not occur. However, if present, roosting western red bats could be impacted by work activities such as vegetation removal (i.e., day roost sites). In addition to the Project adhering to the SAA conditions pertaining to special-status species and bat habitat assessments, to ensure potential impacts to western red bat are reduced to less than significant levels we recommend the following parameters are developed into a Mitigation Measure to protect roosting western red bats:

- Preconstruction surveys are conducted by a CDFW-Approved Qualified Biologist no more than 48-hours prior to the onset of site preparation and construction activities to identify and flag any locations (e.g., trees or shrubs) where a western red bat is found roosting.
- If a roost location is found that could be disturbed or directly impacted by construction activities, the CDFW-Approved Qualified Biologist would install an appropriate no work buffer around the roost location.
- Work would not occur within the buffer until the western red bat(s) are determined by a CDFW-Approved Qualified Biologist to be absent from the area.

The Project will result in the relocation of at least one San Francisco dusky-footed woodrat lodge and the species could be further disturbed during bank rehabilitation work and equipment access. To reduce impacts to this species to less than significant levels, we recommended the following parameters are developed into a Mitigation Measure to protect woodrats and their lodges:

- Preconstruction surveys are conducted by a CDFW-Approved Qualified Biologist no more than 48-hours prior to the onset of site preparation and construction activities to identify and flag woodrat lodges.
- If woodrat lodges are found that could be disturbed by construction activities, a woodrat nest relocation plan will be provided to CDFW for review and approval prior to the start of construction activities. The plan will require that the CDFW-Approved Qualified Biologist would install a 5-foot no work buffer around the lodges.
- If woodrat lodges cannot be avoided by construction activities, the plan will detail methods for a CDFW-Approved Qualified Biologist to passively dismantle the lodge and relocate the lodge

materials (i.e., sticks and logs) to the closest location possible that is outside of the construction work area.

# Section 5. Conclusion

We determined that through compliance with the conservation measures described in this BSA, including the recommended parameters to be developed into Mitigation Measures, potential impacts to sensitive biological resources would be completely avoided, reduced, and/or mitigated for. Therefore, substantial adverse impacts to biological resources are not expected as a result of this Project and are considered to be less than significant.

## Section 6. Photos

Photo 1: Upstream boundary of the Project at the Bollinger Road crossing.

Photo 2: Representative photo of Calabazas creek in the Project area.

Photo 3: Representative photo of Calabazas Creek in the Project area.

Photo 4: Representative photo of Calabazas Creek in the Project area.

Photo 5: Confluence of Regnart Creek with Calabazas Creek.

Photo 6: Representative photo of Calabazas Creek.

Photo 7: Downstream boundary of the Project at the Miller Road crossing.

Photo 8: Cooper's hawk nest in the Project area.

Photo 9: San Francisco dusky-footed woodrat lodge in the Project area.

Photo 10: San Francisco dusky-footed woodrat lodge in the Project area.

## Section 7. References


Baker, M.D., M.J. Lacki, G.A. Falxa, P.L. Droppleman, R.A. Slack, and S.A. Slankard. 2008. "Habitat Use of Pallid Bats in Coniferous Forests of Northern California." Northwest Science 82(4):269–275.

Barbour, R. W., and W. H. Davis. 1969. Bats of America. Univ. of Kentucky Press, Lexington. 286pp.

Barlow, C. 1900. Some additions to Van Denburgh's list of land birds of Santa Clara Co., Cal. Condor 2:131-133.

Bousman, W. G. 2016. A Checklist of the Birds of Santa Clara County. Santa Clara Valley Audubon Society, Cupertino, California.

Bousman, W.G. 2007. W. G. Bousman, editor. Breeding Bird Atlas of Santa Clara County. Santa Clara Valley Audubon Society, Cupertino, California.

Bulger, J. 1998. Wet season dispersal and habitat use by juvenile California red-legged frogs (*Rana aurora draytonii*) in forest and rangeland habitats of the Santa Cruz Mountains. Research proposal.

Bulger, J. B., N. J. Scott Jr., and R. B. Seymour. 2003. Terrestrial activity and conservation of adult California red-legged frogs (*Rana aurora draytonii)* in coastal forests and grasslands. Biological Conservation 110:85-95.

[CDFW] California Department of Fish and Wildlife. (2020). California Natural Diversity Database (CNDDB). Government version 5.83.12. Retrieved May, 2020 from https://apps.wildlife.ca.gov/bios/?bookmark=326

[CDFW] California Department of Fish and Wildlife. (2019a). California Natural Diversity Database (CNDDB). Government version 5.83.12. Retrieved March, 2019 from https://apps.wildlife.ca.gov/bios/?bookmark=326

[CDFW] California Department of Fish and Wildlife. (2019b). Biogeographic Information and Observation System (BIOS). Government version 5.83.12. Retrieved December 10, 2019 from https://apps.wildlife.ca.gov/bios/?bookmark=326

[CDFW] California Department of Fish and Wildlife. (2019c). California Natural Diversity Database Special Animals List – August 2019. Periodic publication. 67 pp.

[CDFW] California Department of Fish and Wildlife. California Interagency Wildlife Task Group. 2014. CWHR version 9.0 personal computer program. Sacramento, CA.

[CNPS] California Native Plant Society. 2018. Inventory of Rare and Endangered Plants (online edition, v7-09d). California Native Plant Society. Sacramento, California. http://cnps.site.aplus.net/cgibin/inv/inventory.cgi. Accessed October 2018.

Cornell Lab of Ornithology. 2019. eBird: An online database of bird distribution and abundance [web application]. eBird, Ithaca, New York. Available: http://www.ebird.org. Accessed March 2019.
Cryan, P. M. 2003. Seasonal Distribution of Migratory Tree Bats (Lasiurus and Lasionycteris) in North America. USGS Staff – Published Research. 119.

Dykstra, C. R., J. L. Hays, and S. T. Crocoll (2008). Red-shouldered Hawk (*Buteo lineatus)*, version 2.0. In The Birds of North America (A. F. Poole, Editor). Cornell Lab of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bna.107

ESA, *Calabazas Creek Project – California Red-Legged Frog Protocol-Level Habitat Assessment*, 2007.

Fellers, G. M. and P. M. Kleeman. 2007. California red-legged frog (*Rana draytonii)* movement and habitat use: Implications for conservation. Journal of Herpetology 41: 276-286.

Google Inc. 2019. Google Earth Pro (Version 7.3.2.5487) [Software]. Available from earth.google.com.

Grinnell, J. and M. W. Wythe. 1927. Directory to the bird-life of the San Francisco Bay Region. Pacific Coast Avifauna. No. 18. Cooper Ornthol. Club, Berkeley.

Hermanson, J.W., and T.J. O'Shea. 1983. "Antrozous pallidus." American Society of Mammalogists. Mammalian Species 213:1–8.

H.T. Harvey & Associates. 1997a. California Tiger Salamander Distribution and Status. Report to Santa Clara Valley Water District.

H.T. Harvey & Associates. 1997b. California Red-legged Frog Distribution and Status. Report to Santa Clara Valley Water District.

ICF International. 2012. Final Santa Clara Valley Habitat Plan. Santa Clara County, California. Prepared by the City of Gilroy, City of Morgan Hill, City of San Jose, County of Santa Clara, Santa Clara Valley Transportation Authority, and Santa Clara Valley Water District.

Johnston, D. S., and S. Whitford. 2009. Seasonal range maps for western red bats (Lasiurus blossevillii) in California and wintering western red bat in red gum eucalyptus (Eucalyptus camaldulensis) leaf litter. Bat Research News 50(4):115.

Levick, L., J. Fonseca, D. Goodrich, M. Hernandez, D. Semmens, J. Stromberg, R. Leidy, M. Scianni, D. P. Guertin, M. Tluczek, and W. Kepner. 2008. The Ecological and Hydrological Significance of Ephemeral and Intermittent Streams in the Arid and Semi-arid American Southwest. U.S. Environmental Protection Agency and USDA/ARS Southwest Watershed Research Center, EPA/600/R-08/134, ARS/233046, 116 pp.

O'Shea, T. J., and T. A. Vaughan. 1977. Nocturnal and seasonal activities of the pallid bat, Antrozous pallidus. Journal of Mammalogy 58:269-284.

Rathbun, G.B., M.R. Jennings, T.G. Murphy, and N.R. Siepel. 1993. Status and ecology of sensitive aquatic vertebrates in lower San Simeon and Pico Creeks, San Luis Obispo County, California. U.S. Fish and Wildlife Service, National Ecology Research Center, San Simeon, California. Prepared for the California Department of Parks and Recreation. 103 pp.

Richmond, B. H. Green, D. C. Rice, R. Scalp, and H. J. Peeters. 2011. Alameda County Breeding Bird Atlas. Golden Gate Audubon Society. Berkeley, California.

Robertson, D., and C. Tenney. (eds). 1993. Atlas of the Breeding Birds of Monterey County. Monterey Pen. Audubon Soc., Carmel, CA.

Shuford, W. D., and Gardali, T., editors. 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.

[USFWS] Information, Planning, and Consultation System. 2019a. Available: https://ecos.fws.gov/ipac/. Accessed March 2019.

[USFWS] U.S. Fish and Wildlife Service. 2019b. Recovery Plan Amendment for the San Bruno Elfin and Mission Blue Butterflies. Sacramento, California. 23 pp.

[USFWS] U.S. Fish and Wildlife Service. 2017. Delta Smelt: Species Assessment and Listing Priority Assignment Form. Pacific Southwest Region. 59 pp.

[USFWS] U.S. Fish and Wildlife Service. 2013. Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California. Sacramento, California. 605 pp.

[USFWS] U.S. Fish and Wildlife Service. 2005. Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog. 26 pp.

[USFWS] U.S. Fish and Wildlife Service. 1997. Recovery Plan for the Threatened Marbled Murrelet (Brachyramphus marmoratus) in Washington, Oregon, and California. Portland, Oregon. 203 pp.

[Valley Water] Santa Clara Valley Water District. 2019. Alert System: Automated Local Evaluation in Real Time [web application]. Available: http://alert.valleywater.org/index.php. Accessed March 2019.

## Personal Communications

Johnston, D. 2019. Email communication with H.T. Harvey & Associates Wildlife Ecologist and bat expert on March 5, 2019

Xu, J. 2019. Email communication with Valley Water Civil Engineer in the Hydrology, Hydraulics, and Geomorphology Unit on May 30, 2019

Watson, J. 2020. Email communication with Valley Water Associate Biologist and bat expert on May 14, 2020.

# Attachment A

# CNPS Rare Plant Inventory 9-Quad Search

CNPS California Native Plant Society

# Calabazas Crk – Milpitas Quad

## Plant List

Inventory of Rare and Endangered Plants

**45** matches found. *Click on scientific name for details*

→ No CNDDB records overlap project area.

**Search Criteria**

Found in Santa Clara County, Found in Quads 3712251, 3712158, 3712157, 3712241, 3712148, 3712147, 3712231 3712138 and 3712137;

Modify Search Criteria | Export to Excel | Modify Columns | Modify Sort | Display Photos

| Scientific Name | Common Name | Family | Lifeform | Blooming Period | CA Rare Plant Rank | State Rank | Global Rank |
|---|---|---|---|---|---|---|---|
| Acanthomintha lanceolata | Santa Clara thorn-mint | Lamiaceae | annual herb | Mar-Jun | 4.2 | S4 | G4 |
| Androsace elongata ssp. acuta | California androsace | Primulaceae | annual herb | Mar-Jun | 4.2 | S3S4 | G5?T3T4 |
| Astragalus tener var. tener | alkali milk-vetch | Fabaceae | annual herb | Mar-Jun | 1B.2 | S2 | G2T2 |
| Balsamorhiza macrolepis | big-scale balsamroot | Asteraceae | perennial herb | Mar-Jun | 1B.2 | S2 | G2 |
| Calandrinia breweri | Brewer's calandrinia | Montiaceae | annual herb | (Jan)Mar-Jun | 4.2 | S4 | G4 |
| Campanula exigua | chaparral harebell | Campanulaceae | annual herb | May-Jun | 1B.2 | S2 | G2 |
| Centromadia parryi ssp. congdonii | Congdon's tarplant | Asteraceae | annual herb | May-Oct(Nov) | 1B.1 | S2 | G3T2 |
| Chloropyron maritimum ssp. palustre | Point Reyes bird's-beak | Orobanchaceae | annual herb (hemiparasitic) | Jun-Oct | 1B.2 | S2 | G4?T2 |
| Chorizanthe robusta var. robusta | robust spineflower | Polygonaceae | annual herb | Apr-Sep | 1B.1 | S1 | G2T1 |
| Cirsium fontinale var. campylon | Mt. Hamilton fountain thistle | Asteraceae | perennial herb | (Feb)Apr-Oct | 1B.2 | S2 | G2T2 |
| Clarkia concinna ssp. automixa | Santa Clara red ribbons | Onagraceae | annual herb | (Apr)May-Jun(Jul) | 4.3 | S3 | G5?T3 |
| Collinsia multicolor | San Francisco collinsia | Plantaginaceae | annual herb | (Feb)Mar-May | 1B.2 | S2 | G2 |
| Cypripedium fasciculatum | clustered lady's-slipper | Orchidaceae | perennial rhizomatous herb | Mar-Aug | 4.2 | S4 | G4 |
| Delphinium californicum ssp. interius | Hospital Canyon larkspur | Ranunculaceae | perennial herb | Apr-Jun | 1B.2 | S3 | G3T3 |
| Dirca occidentalis | western leatherwood | Thymelaeaceae | perennial deciduous shrub | Jan-Mar(Apr) | 1B.2 | S2 | G2 |
| Dudleya abramsii ssp. setchellii | Santa Clara Valley dudleya | Crassulaceae | perennial herb | Apr-Oct | 1B.1 | S2 | G4T2 |
| Eriophyllum jepsonii | Jepson's woolly | Asteraceae | perennial herb | Apr-Jun | 4.3 | S3 | G3 |

occurrence 4mi SW of project area, Stevens Crk Trail

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | sunflower | | | | | | | |
| Eryngium aristulatum var. hooveri | Hoover's button-celery | Apiaceae | annual / perennial herb | (Jun)Jul(Aug) | 1B.1 | S1 | G5T1 |
| Extriplex joaquinana | San Joaquin spearscale | Chenopodiaceae | annual herb | Apr-Oct | 1B.2 | S2 | G2 |
| Fritillaria agrestis | stinkbells | Liliaceae | perennial bulbiferous herb | Mar-Jun | 4.2 | S3 | G3 |
| Fritillaria liliacea | fragrant fritillary | Liliaceae | perennial bulbiferous herb | Feb-Apr | 1B.2 | S2 | G2 |
| Hoita strobilina – for U/S | Loma Prieta hoita | Fabaceae | perennial herb | May-Jul(Aug-Oct) | 1B.1 | S2 | G2 |
| Iris longipetala | coast iris | Iridaceae | perennial rhizomatous herb | Mar-May | 4.2 | S3 | G3 |
| Lasthenia conjugens | Contra Costa goldfields | Asteraceae | annual herb | Mar-Jun | 1B.1 | S1 | G1 |
| Leptosiphon acicularis | bristly leptosiphon | Polemoniaceae | annual herb | Apr-Jul | 4.2 | S4? | G4? |
| Leptosiphon ambiguus | serpentine leptosiphon | Polemoniaceae | annual herb | Mar-Jun | 4.2 | S4 | G4 |
| Lessingia hololeuca | woolly-headed lessingia | Asteraceae | annual herb | Jun-Oct | 3 | S3? | G3? |
| Lessingia micradenia var. glabrata | smooth lessingia | Asteraceae | annual herb | (Apr-Jun)Jul-Nov | 1B.2 | S2 | G2T2 |
| Malacothamnus arcuatus – for U/S | arcuate bush-mallow | Malvaceae | perennial evergreen shrub | Apr-Sep | 1B.2 | S2 | G2Q |
| Malacothamnus hallii | Hall's bush-mallow | Malvaceae | perennial evergreen shrub | (Apr)May-Sep(Oct) | 1B.2 | S2 | G2 |
| Micropus amphibolus | Mt. Diablo cottonweed | Asteraceae | annual herb | Mar-May | 3.2 | S3S4 | G3G4 |
| Mielichhoferia elongata | elongate copper moss | Mielichhoferiaceae | moss | | 4.3 | S4 | G5 |
| Monardella antonina ssp. antonina | San Antonio Hills monardella | Lamiaceae | perennial rhizomatous herb | Jun-Aug | 3 | S1S3 | G4T1T3Q |
| Monolopia gracilens – for U/S | woodland woolythreads | Asteraceae | annual herb | (Feb)Mar-Jul | 1B.2 | S3 | G3 |
| Navarretia prostrata | prostrate vernal pool navarretia | Polemoniaceae | annual herb | Apr-Jul | 1B.1 | S2 | G2 |
| Plagiobothrys glaber | hairless popcornflower | Boraginaceae | annual herb | Mar-May | 1A | SH | GH |
| Puccinellia simplex | California alkali grass | Poaceae | annual herb | Mar-May | 1B.2 | S2 | G3 |
| Senecio aphanactis | chaparral ragwort | Asteraceae | annual herb | Jan-Apr(May) | 2B.2 | S2 | G3 |
| Sidalcea malachroides | maple-leaved checkerbloom | Malvaceae | perennial herb | (Mar)Apr-Aug | 4.2 | S3 | G3 |
| Streptanthus albidus ssp. albidus | Metcalf Canyon jewelflower | Brassicaceae | annual herb | Apr-Jul | 1B.1 | S1 | G2T1 |
| Streptanthus albidus ssp. peramoenus | most beautiful jewelflower | Brassicaceae | annual herb | (Mar)Apr-Sep(Oct) | 1B.2 | S2 | G2T2 |
| Stuckenia filiformis ssp. alpina | slender-leaved pondweed | Potamogetonaceae | perennial rhizomatous herb (aquatic) | May-Jul | 2B.2 | S3 | G5T5 |
| Suaeda californica | California seablite | Chenopodiaceae | perennial evergreen shrub | Jul-Oct | 1B.1 | S1 | G1 |

Saratoga / Foothills.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Trifolium hydrophilum | saline clover | Fabaceae | annual herb | Apr-Jun | 1B.2 | S2 | G2 |
| Tropidocarpum capparideum | caper-fruited tropidocarpum | Brassicaceae | annual herb | Mar-Apr | 1B.1 | S1 | G1 |

### Suggested Citation

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The California Lichen Society
California Natural Diversity Database
The Jepson Flora Project
The Consortium of California Herbaria
CalPhotos

**Questions and Comments**

rareplants@cnps.org

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# Attachment B

# USFWS IPAC System Report

**IPaC** **U.S. Fish & Wildlife Service**

# IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

## Location

Santa Clara County, California

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# Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

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# Endangered species

**This resource list is for informational purposes only and does not constitute an analysis of project level impacts.**

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

# Birds

| NAME | STATUS |
|---|---|
| California Clapper Rail Rallus longirostris obsoletus<br>No critical habitat has been designated for this species.<br>https://ecos.fws.gov/ecp/species/4240 | Endangered |
| California Least Tern Sterna antillarum browni<br>No critical habitat has been designated for this species.<br>https://ecos.fws.gov/ecp/species/8104 | Endangered |
| Marbled Murrelet Brachyramphus marmoratus<br>There is **final** critical habitat for this species. Your location is outside the critical habitat.<br>https://ecos.fws.gov/ecp/species/4467 | Threatened |

# Amphibians

| NAME | STATUS |
|---|---|
| California Red-legged Frog Rana draytonii<br>There is **final** critical habitat for this species. Your location is outside the critical habitat.<br>https://ecos.fws.gov/ecp/species/2891 | Threatened |
| California Tiger Salamander Ambystoma californiense<br>There is **final** critical habitat for this species. Your location is outside the critical habitat.<br>https://ecos.fws.gov/ecp/species/2076 | Threatened |

NOT FOR CONSULTATION

# Fishes

| NAME | STATUS |
|---|---|
| Delta Smelt Hypomesus transpacificus<br>There is **final** critical habitat for this species. Your location is outside the critical habitat.<br>https://ecos.fws.gov/ecp/species/321 | Threatened |

# Insects

| NAME | STATUS |
|---|---|
| Bay Checkerspot Butterfly Euphydryas editha bayensis<br>There is **final** critical habitat for this species. Your location is outside the critical habitat.<br>https://ecos.fws.gov/ecp/species/2320 | Threatened |
| San Bruno Elfin Butterfly Callophrys mossii bayensis<br>There is **proposed** critical habitat for this species. The location of the critical habitat is not available.<br>https://ecos.fws.gov/ecp/species/3394 | Endangered |

# Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

# Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

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Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

| NAME | BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE |
|---|---|

NOT FOR CONSULTATION

TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

| | |
|---|---|
| Allen's Hummingbird Selasphorus sasin<br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.<br>https://ecos.fws.gov/ecp/species/9637 | Breeds Feb 1 to Jul 15 |
| Bald Eagle Haliaeetus leucocephalus<br>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.<br>https://ecos.fws.gov/ecp/species/1626 | Breeds Jan 1 to Aug 31 |
| Clark's Grebe Aechmophorus clarkii<br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. | Breeds Jan 1 to Dec 31 |
| Common Yellowthroat Geothlypis trichas sinuosa<br>This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA<br>https://ecos.fws.gov/ecp/species/2084 | Breeds May 20 to Jul 31 |
| Golden Eagle Aquila chrysaetos<br>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.<br>https://ecos.fws.gov/ecp/species/1680 | Breeds Jan 1 to Aug 31 |

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Lawrence's Goldfinch Carduelis lawrencei — Breeds Mar 20 to Sep 20
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9464

Nuttall's Woodpecker Picoides nuttallii — Breeds Apr 1 to Jul 20
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9410

Oak Titmouse Baeolophus inornatus — Breeds Mar 15 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9656

Rufous Hummingbird selasphorus rufus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8002

Song Sparrow Melospiza melodia — Breeds Feb 20 to Sep 5
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Spotted Towhee Pipilo maculatus clementae — Breeds Apr 15 to Jul 20
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/4243

Wrentit Chamaea fasciata — Breeds Mar 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

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# Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

**Probability of Presence** (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

**Breeding Season** (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

**Survey Effort** (|)

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Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

**No Data** (–)
A week is marked as having no data if there were no survey events for that week.

**Survey Timeframe**
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

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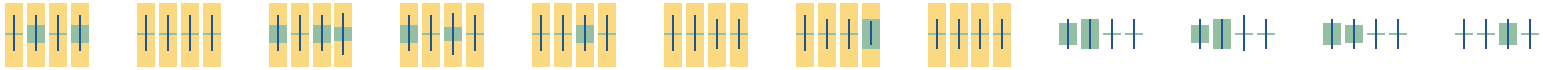
Common Yellowthroat
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

Golden Eagle
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) *in this area*, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)



Lawrence's Goldfinch
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Nuttall's Woodpecker
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

Oak Titmouse
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Rufous Hummingbird
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

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Song Sparrow
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

Spotted Towhee
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

Wrentit
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

**Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.**

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

**What does IPaC use to generate the migratory birds potentially occurring in my specified location?**

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the E-bird Explore Data Tool.

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**What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?**

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

**How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?**

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

**What are the levels of concern for migratory birds?**

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

**Details about birds that are potentially affected by offshore projects**

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

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Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

### What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

### Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

# Facilities

## National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

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# Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

# Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

RIVERINE

- R4SBC
- R4SBCx

A full description for each wetland code can be found at the National Wetlands Inventory website

**Data limitations**

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

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Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

### Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

### Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

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# Attachment C

# Valley Water BMPs Applicable to Biological Resources

# Valley Water BMPs Applicable to Biological Resources

| Air Quality | |
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| **AQ-1**<br><br>**Use Dust Control Measures** | The following Bay Area Air Quality Management District (BAAQMD) Dust Control Measures will be implemented:<br>1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day;<br>2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered;<br>3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited;<br>4. Water used to wash the various exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, etc.) will not be allowed to enter waterways;<br>5. All vehicle speeds on unpaved roads shall be limited to 15 mph;<br>6. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used;<br>7. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations), and this requirement shall be clearly communicated to construction workers (such as verbiage in contracts and clear signage at all access points);<br>8. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications, and all equipment shall be checked by a certified visible emissions evaluator;<br>9. Correct tire inflation shall be maintained in accordance with manufacturer's specifications on wheeled equipment and vehicles to prevent excessive rolling resistance; and,<br>10. Post a publicly visible sign with a telephone number and contact person at the lead agency to address dust complaints; any complaints shall be responded to and take corrective action within 48 hours. In addition, a BAAQMD telephone number with any applicable regulations will be included. |
| **AQ-2**<br><br>**Avoid Stockpiling Odorous Materials** | Materials with decaying organic material, or other potentially odorous materials, will be handled in a manner that avoids impacting residential areas and other sensitive receptors, including:<br>1. Avoid stockpiling potentially odorous materials within 1,000 feet of residential areas or other odor sensitive land uses; and<br>2. Odorous stockpiles will be disposed of at an appropriate landfill. |
| **AQ-3**<br><br>**Reduce Construction-related $NO_X$ Emissions** | Nitrogen oxide ($NO_X$) construction mitigation measures recommended by BAAQMD will be implemented, including the following:<br>● Minimize idling time either by shutting equipment off when not in use or by reducing the time of idling to 5 minutes [required by 13 CCR Sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site.<br>● Maintain all construction equipment in proper working condition in accordance with manufacturer's specifications. The equipment must be checked by a certified mechanic and determined to be running in proper condition before it is operated. |

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| | • Provide a plan for approval by Valley Water demonstrating that the construction contractors' heavy-duty off-road vehicles (50 horsepower or more) to be used in Project construction, including owned, leased, and subcontractor vehicles, will achieve a Project-wide fleet-average 20 percent $NO_X$ reduction and 45 percent particulate reduction compared to the most recent California Air Resources Board fleet average. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available.<br>• Ensure that emissions from Valley Water's construction contractors' off-road diesel-powered equipment used on the Project site do not exceed 40 percent opacity for more than three minutes in any one hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) will be repaired immediately.<br>• A visual survey of all in-operation equipment will be made at least weekly. |
| **Biological Resources** | |
| **BI-1**<br>**Remove Temporary Fill** | Temporary fill materials, such as for diversion structures or cofferdams, will be removed upon finishing the work or as appropriate. The creek channels and banks will be re-contoured to match pre-construction conditions to the extent possible. Low-flow channels within non-tidal streams will be contoured to facilitate fish passage and will emulate the preconstruction conditions as closely as possible, within the finished channel topography. |
| **BI-2**<br>**Avoid Impacts to Nesting Migratory Birds** | Prior to the start of construction activities that begin during the migratory bird nesting period (between January 15 and August 31 of any year), Valley Water shall retain a qualified wildlife biologist to conduct a survey for nesting raptors and migratory birds that could nest along the Project corridor. Surveys will cover all suitable raptor and migratory bird nesting habitat that will be impacted directly or by disturbance, including habitat potentially used by ground-nesting migratory bird species.<br>All migratory bird nesting surveys will be performed no more than 7 days prior to any Project-related activity that could pose the potential to affect migratory birds. With the exception of raptor nests, inactive bird nests may be removed. No birds, nests with eggs, or nests with hatchlings will be disturbed. |
| **BI-3**<br>**Avoid Impacts to Nesting Migratory Birds from Pending Construction** | Nesting exclusion devices may be installed to prevent potential establishment or occurrence of nests in areas where construction activities would occur. All nesting exclusion devices will be maintained throughout the nesting season or until completion of work in an area makes the devices unnecessary. All exclusion devices will be removed and disposed of when work in the area is complete. |
| **BI-4**<br>**Choose Local Ecotypes Of Native Plants and Appropriate Erosion-Control Seed Mixes** | Whenever native species are prescribed for installation the following steps will be taken by a qualified biologist or vegetation specialist:<br>1. Evaluate whether the plant species currently grows wild in Santa Clara County; and,<br>2. If so, the qualified biologist or vegetation specialist will determine if any need to be local natives, i.e. grown from propagules collected in the same or adjacent watershed, and as close to the Project site as feasible.<br>Also, consult a qualified biologist or vegetation specialist to determine which seeding option is ecologically appropriate and effective, specifically:<br>1. For areas that are disturbed, an erosion control seed mix may be used consistent with the Valley Water *Guidelines and Standards for Land Use Near Streams, Design Guide 5, 'Temporary Erosion Control Options.'*<br>2. In areas with remnant native plants, the qualified biologist or vegetation specialist may choose an abiotic application instead, such as an erosion control blanket or seedless hydro-mulch and tackifier |

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| | to facilitate passive revegetation of local native species. If a gravel has been used to prevent soil compaction, this material may be left in place [if ecologically appropriate] instead of seeding.<br><br>Seed selection shall be ecologically appropriate as determined by a qualified biologist, per *Guidelines and Standards for Land Use Near Streams, Design Guide 2: Use of Local Native Species*. |
| **BI-5**<br><br>**Restore Riffle/Pool Configuration of Channel Bottom** | The channel bottom shall be re-graded at the completion of work and restored to as close to the pre-Project conditions and contours as possible. |
| **BI-6**<br><br>**Avoid Animal Entry and Entrapment** | All pipes, hoses, or similar structures less than 12 inches diameter will be closed or covered to prevent animal entry. All construction pipes, culverts, or similar structures, greater than 2-inches diameter, stored at a construction site overnight, will be inspected thoroughly for wildlife by a qualified biologist or properly trained construction personnel before the pipe is buried, capped, used, or moved. If inspection indicates presence of sensitive or State- or federally listed species inside stored materials or equipment, work on those materials will cease until a qualified biologist determines the appropriate course of action.<br><br>To prevent entrapment of animals, all excavations, steep-walled holes or trenches more than 6-inches deep will be secured against animal entry at the close of each day. Any of the following measures may be employed, depending on the size of the hole and method feasibility:<br><br>1. Hole to be securely covered (no gaps) with plywood, or similar materials, at the close of each working day, or any time the opening will be left unattended for more than one hour; or<br>2. In the absence of covers, the excavation will be provided with escape ramps constructed of earth or untreated wood, sloped no steeper than 2:1, and located no farther than 15 feet apart; or<br>3. In situations where escape ramps are infeasible, the hole or trench will be surrounded by filter fabric fencing or a similar barrier with the bottom edge buried to prevent entry. |
| **BI-7**<br><br>**Minimize Predator-Attraction** | Remove trash daily from the worksite to avoid attracting potential predators to the site. |
| **BI-9**<br><br>**Minimize Spread of Invasive Plants** | The spread of invasive nonnative plant species and plant pathogens will be avoided or minimized by implementing the following measures:<br>1. Construction equipment will arrive at the Project clean and free of soil, seed, and plant parts to reduce the likelihood of introducing new weed species.<br>2. Any imported fill material, soil amendments, gravel, etc., required for construction activities that will be placed within the upper 12 inches of the ground surface will be free of vegetation and plant material.<br>3. Certified weed-free imported erosion control materials (or rice straw in upland areas) will be used exclusively. |
| **Hazards and Hazardous Materials** | |
| **HM-1**<br><br>**Comply with All Pesticide Application Restrictions and Policies** | Pesticide products are to be used only after an assessment has been made regarding environmental, economic, and public health aspects of each of the alternatives by the Valley Water Pest Control Advisor (PCA). All pesticide use will be consistent with approved product specifications. Applications will be made by, or under the direct supervision of, State Certified applicators under the direction of, or in a manner approved by the PCA. |

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| **HM-2**<br><br>**Comply with All Pesticide Usage Requirements** | All projects that propose ongoing use of pesticides will comply with all provisions of Q751D02: Control and Oversight of Pesticide Use, including, but not necessarily limited to the following:<br><br>1. All pest control methods will be performed only after a written Pest Control Recommendation for use has been prepared by the District's PCA in accordance with requirements of the California Food and Agricultural Code.<br><br>2. F751D01 – Pest Control Recommendation & Spray Operators Report will be completed for each pesticide application. |
| **HM-3**<br><br>**Comply with Restrictions on Herbicide Use in Aquatic Areas** | Consistent with provisions of Q751D02: Control and Oversight of Pesticide Use, only herbicides and surfactants registered for aquatic use will be applied within the banks of channels within 20 feet of any water present.<br><br>Furthermore, aquatic herbicide use will be limited to June 15 through October 31 with an extension through December 31 or until the first occurrence of local rainfall greater than 0.5 inches is forecasted within a 24-hour period from planned application events according to the National Weather Service. If rain is forecast, then application of aquatic herbicide will be rescheduled. |
| **HM-4**<br><br>**Restrict Vehicle and Equipment Cleaning to Appropriate Locations** | Vehicles and equipment may be washed only at approved areas. No washing of vehicles or equipment will occur in the Project area. |
| **HM-5**<br><br>**Ensure Proper Vehicle and Equipment Fueling and Maintenance** | No fueling or servicing will be done in a waterway or immediate flood plain, unless equipment stationed in these locations is not readily relocated (i.e., pumps, generators).<br><br>1. For stationary equipment that must be fueled or serviced on site, containment will be provided in such a manner that any accidental spill will not be able to come in direct contact with soil, surface water, or the storm drainage system.<br><br>2. All fueling or servicing done at the site will provide containment to the degree that any spill will be unable to enter any waterway or damage riparian vegetation.<br><br>3. All vehicles and equipment will be kept clean. Excessive build-up of oil and grease will be prevented.<br><br>4. All equipment used in the Bay or flood basin will be inspected for leaks each day prior to initiation of work. Maintenance, repairs, or other necessary actions will be taken to prevent or repair leaks, prior to use.<br><br>5. If emergency repairs are required in the field, only those repairs necessary to move equipment to a more secure location will be done in a waterway or flood plain. |
| **HM-6**<br><br>**Ensure Proper Hazardous Materials Management** | Measures will be implemented to ensure that hazardous materials are properly handled and the quality of water resources is protected by all reasonable means.<br><br>1. Prior to entering the work site, all field personnel will know how to respond when toxic materials are discovered.<br><br>2. Contact of chemicals with precipitation will be minimized by storing chemicals in watertight containers with appropriate secondary containment to prevent any spillage or leakage.<br><br>3. Petroleum products, chemicals, cement, fuels, lubricants, and non-storm drainage water or water contaminated with the aforementioned materials will not contact soil and not be allowed to enter surface waters or the storm drainage system.<br><br>4. All toxic materials, including waste disposal containers, will be covered when they are not in use, and located as far away as possible from a direct connection to the storm drainage system or surface water.<br><br>5. Quantities of toxic materials, such as equipment fuels and lubricants, will be stored with secondary containment that is capable of containing 110 percent of the primary container(s). |

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| | 6. The discharge of any hazardous or non-hazardous waste as defined in Division 2, Subdivision 1, Chapter 2 of the California Code of Regulations will be conducted in accordance with applicable State and federal regulations.<br>7. In the event of any hazardous material emergencies or spills, personnel will call the Chemical Emergencies/Spills Hotline at 1-800-510-5151. |
| **HM-7**<br>**Utilize Spill Prevention Measures** | Prevent the accidental release of chemicals, fuels, lubricants, and non-storm drainage water following these measures:<br>1. Field personnel will be appropriately trained in spill prevention, hazardous material control, and cleanup of accidental spills;<br>2. Equipment and materials for cleanup of spills will be available on site, and spills and leaks will be cleaned up immediately and disposed of according to applicable regulatory requirements;<br>3. Field personnel will ensure that hazardous materials are properly handled and natural resources are protected by all reasonable means;<br>4. Spill prevention kits will always be in close proximity when using hazardous materials (e.g., at crew trucks and other logical locations), and all field personnel will be advised of these locations; and,<br>5. The work site will be routinely inspected to verify that spill prevention and response measures are properly implemented and maintained. |
| **HM-6**<br>**Incorporate Fire Prevention Measures** | 1. All earthmoving and portable equipment with internal combustion engines will be equipped with spark arrestors.<br>2. During the high fire danger period (April 1–December 1), work crews will have appropriate fire suppression equipment available at the work site.<br>3. An extinguisher shall be available at the project site at all times when welding or other repair activities that can generate sparks (such as metal grinding) is occurring.<br>4. Smoking shall be prohibited except in designated staging areas and at least 20 feet from any combustible chemicals or vegetation. |
| **Hydrology and Water Quality** | |
| **WQ-1**<br>**Limit Impact of Pump and Generator Operation and Maintenance** | Pumps and generators will be maintained and operated in a manner that minimizes impacts to water quality and aquatic species.<br>1. Pumps and generators will be maintained according to manufacturers' specifications to regulate flows to prevent dry-back or washout conditions.<br>2. Pumps will be operated and monitored to prevent low water conditions, which could pump muddy bottom water, or high-water conditions, which creates ponding.<br>3. Pump intakes will be screened to prevent uptake of fish and other vertebrates. Pumps will be screened according to NMFS criteria.<br>4. Sufficient back-up pumps and generators will be on site to replace defective or damaged pumps and generators. |
| **WQ-2**<br>**Limit Impacts from Staging and Stockpiling Materials** | 1. To protect on site vegetation and water quality, staging areas should occur on access roads, surface streets, or other disturbed areas that are already compacted and only support ruderal vegetation. Similarly, all equipment and materials (e.g., road rock and spoils) will be contained within the existing access roads or other pre-determined staging areas.<br>2. Building materials and other Project-related materials, including chemicals and sediment, will not be stockpiled or stored where they could spill into water bodies. |

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| | 3. No runoff from the staging areas may be allowed to enter water ways without being subjected to adequate filtration (e.g., vegetated buffer, swale, hay wattles or bales, silt screens).<br>4. The discharge of decant water to water ways from any on site temporary sediment stockpile or storage areas is prohibited.<br>5. During the wet season, no stockpiled soils will remain exposed, unless surrounded by properly installed and maintained silt fencing or other means of erosion control. During the dry season; exposed, dry stockpiles will be watered, enclosed, covered, or sprayed with non-toxic soil stabilizers. |
| **WQ-3**<br>**Use Seeding for Erosion Control, Weed Suppression, and Site Improvement** | Disturbed areas shall be seeded with native seed as soon as is appropriate after activities are complete. An erosion control seed mix will be applied to exposed soils down to the ordinary high water mark of the flood basin and the mean high higher tide line on the Bay side of the work area.<br>The seed mix should consist of California native grasses, (for example Hordeum brachyantherum; Elymus glaucus; and annual Vulpia microstachyes) or annual, sterile hybrid seed mix (e.g., Regreen™, a wheat x wheatgrass hybrid). |
| **WQ-4**<br>**Maintain Clean Conditions at Work Sites** | The work site, areas adjacent to the work site, and access roads will be maintained in an orderly condition, free and clear from debris and discarded materials on a daily basis. Personnel will not sweep, grade, or flush surplus materials, rubbish, debris, or dust into storm drains or waterways.<br>Materials or equipment left on the site overnight will be stored as inconspicuously as possible and will be neatly arranged. Any materials and equipment left on the site overnight will be stored to avoid erosion, leaks, or other potential impacts to water quality<br>Upon completion of work, all building materials, debris, unused materials, concrete forms, and other construction-related materials will be removed from the work site. |
| **WQ-5**<br>**Manage Drilling Materials** | All materials or waters generated during drilling will be safely handled, properly managed, and disposed of according to all applicable federal, State, and local statutes regulating such. In no case will these materials and/or waters be allowed to enter, or potentially enter waterways. Such materials/waters must not be allowed to move off the property where the work is being completed. |
| **WQ-6**<br>**Protect Groundwater from Contaminates via Drilling** | Any substances or materials that may degrade groundwater quality will not be allowed to enter any boring. Lubricants used on drill bits, drill pipe, or tremie pipe will not be comprised of oily or greasy substances or other materials that may degrade groundwater quality.<br>Well openings or entrances will be sealed or secured in such a way as to prevent the introduction of contaminants. |
| **WQ-7**<br>**Prevent Water Pollution** | Oily, greasy, or sediment laden substances or other material that originate from the project operations and may degrade the quality of surface water or adversely affect aquatic life, fish, or wildlife will not be allowed to enter, or be placed where they may later enter, any waterway.<br>The project will not increase the turbidity of any watercourse flowing past the construction site by taking all necessary precautions to limit the increase in turbidity as follows:<br>1. where natural turbidity is between 0 and 50 Nephelometric Turbidity Units (NTU), increases will not exceed 5 percent;<br>2. where natural turbidity is greater than 50 NTU, increases will not exceed 10 percent;<br>3. where the receiving water body is a dry creek bed or storm drain, waters in excess of 50 NTU will not be discharged from the project.<br>Water turbidity changes will be monitored. The discharge water measurements will be made at the point where the discharge water exits the water control system for tidal sites and 100 feet downstream of the discharge point for non-tidal sites. Natural watercourse turbidity measurements will be made in the receiving water 100 feet upstream of the discharge site. Natural watercourse turbidity measurements will be made prior to initiation of project discharges, preferably at least 2 days prior to commencement of operations. |

| | |
|---|---|
| **WQ-10**<br><br>**Prevent Stormwater Pollution** | To prevent stormwater pollution, the applicable measures from the following list will be implemented:<br><br>1. Soils exposed due to Project activities will be seeded and stabilized using hydroseeding, straw placement, mulching, and/or erosion control fabric. These measures will be implemented such that the site is stabilized and water quality protected prior to significant rainfall. In creeks, the channel bed and areas below the Ordinary High Water Mark are exempt from this BMP.<br>2. The preference for erosion control fabrics will be to consist of natural fibers; however, steeper slopes and areas that are highly erodible may require more structured erosion control methods. No non-porous fabric will be used as part of a permanent erosion control approach. Plastic sheeting may be used to temporarily protect a slope from runoff, but only if there are no indications that special-status species would be impacted by the application.<br>3. Erosion control measures will be installed according to manufacturer's specifications.<br>4. To prevent stormwater pollution, the appropriate measures from, but not limited to, the following list will be implemented:<br>• Silt Fences<br>• Straw Bale Barriers<br>• Brush or Rock Filters<br>• Storm Drain Inlet Protection<br>• Sediment Traps or Sediment Basins<br>• Erosion Control Blankets and/or Mats<br>• Soil Stabilization (i.e. tackified straw with seed, jute or geotextile blankets, etc.)<br>• Straw mulch.<br>5. All temporary construction-related erosion control methods shall be removed at the completion of the project (e.g. silt fences).<br>6. Surface barrier applications installed as a method of animal conflict management, such as chain link fencing, woven geotextiles, and other similar materials, will be installed no longer than 300 feet, with at least an equal amount of open area prior to another linear installation. |
| **WQ-11**<br><br>**Manage Sanitary and Septic Waste** | Temporary sanitary facilities will be located in compliance with California Division of Occupational Safety and Health (Cal/OSHA) regulation 8 California Code of Regulations 1526. All temporary sanitary facilities will be located where overflow or spillage will not enter a watercourse directly (overbank) or indirectly (through a storm drain). |

# Appendix D
Aquatic Resources Delineation Report

# Aquatic Resource Delineation Report

Calabazas Creek Rehabilitation Project
Cupertino, Santa Clara County, California

**Prepared for:**

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**Date:** October 23, 2018

**WRA Project #:** 28204

ENVIRONMENTAL CONSULTANTS

## Executive Summary

On September 18 and 19, 2018, an aquatic resource delineation was conducted for the Santa Clara Valley Water District's (District or SCVWD) Calabazas Creek Rehabilitation Project (project), in Cupertino, Santa Clara County, California. The delineation was conducted in accordance with the 1987 "Corps of Engineers Wetland Delineation Manual" (Corps 1987), Version 2.0 of the Arid West regional supplement (Corps 2008), and "A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States" (Lichvar and McColley 2008).

The survey area, which extends to residential fence lines, is 10.86 acres and includes a 4,714-feet reach of Calabazas Creek and an approximately 125-foot channelized reach of Regnart Creek that exhibit an OHWM and are hydrologically connected to the South San Francisco Bay. In the survey area, Calabazas and Regnart Creeks' stream flow is intermittent and no flowing water was observed in the channels at the time of the September survey. The Calabazas Creek channel bed is largely unvegetated and mature mixed riparian forest of coast live oak (*Quercus agrifolia*), valley oak (*Quercus lobata*), holly oak (*Quercus ilex*), black walnut (*Juglans hindsii*), and buckeye (*Aesculus californica*) occur on channel banks. The mature canopy shades much of the channel. Ordinary high water mark indicators include breaks in bank slope, changes in vegetation percent cover, and the presence of wrack, algal crust, water staining, and scour. Several small areas of hydrophytic vegetation, dominated by smartweed species (*Persicaria* spp.), on entisols are present as in-channel vegetation but were determined to not meet three-parameter wetland characteristics.

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Appendix D: Plant List
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## Acronyms and Abbreviations

| | |
|---|---|
| CA-85 | California State Route 85 |
| Corps | United States Army Corps of Engineers |
| CWA | Clean Water Act |
| District | Santa Clara Valley Water District |
| FAC | Facultative |
| FACU | Facultative Upland |
| FACW | Facultative Wetland |
| FGDC | Federal Geographic Data Committee |
| GIS | Geographic Information System |
| GPS | Global Positioning System |
| I-280 | Interstate 280 |
| NETR | Nationwide Environmental Title Research |
| NI | No Indicator Status |
| NRCS | Natural Resources Conservation Service |
| NWI | National Wetlands Inventory |
| OBL | Obligate |
| OHWM | Ordinary High Water Mark |
| PRISM | Parameter-Elevation Regressions on Independent Slopes Model |
| Project | Calabazas Creek Rehabilitation Project |
| SCURVPPP | Santa Clara Valley Urban Pollution Prevention Program |
| SCVWD | Santa Clara Valley Water District |
| UPL | Upland |
| US-101 | U.S. Route 101 |
| USFWS | U.S. Fish and Wildlife Service |
| WRA | WRA, Inc. |

# Chapter 1. Introduction

WRA, Inc. (WRA) has been retained by the Santa Clara Valley Water District (District or SCVWD) to conduct a delineation of aquatic resources for the Calabazas Creek Rehabilitation Project (project), which would occur along the Calabazas Creek channel in Cupertino, Santa Clara County, California between Miller Avenue and Bollinger Road. As a part of the project, the District is proposing bank stabilization, which would include buried rip-rap reinforcement with plantings on top. Additionally, the project would include some riparian corridor enhancements by conducting invasive weed removal.On September 18 and 19, 2018, WRA conducted a routine aquatic resource delineation in the project survey area to determine the presence of potential wetlands and non-wetland waters subject to federal jurisdiction under Section 404 of the Clean Water Act (CWA). This report presents the results of this aquatic resource delineation, which are subject to verification by the U.S. Army Corps of Engineers (Corps), San Francisco District.

The District contact for the Project is:
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The 10.86-acre aquatic resource survey area includes the Calabazas Creek channel and areas above top of bank on the east and west side of the stream corridor, up to the surrounding residential homes and park fence lines. The survey area also includes the confluence of Calabazas Creek and Regnart Creek and extends upstream along Regnart Creek for approximately 125 feet. The survey area is bounded by Miller Avenue to the north and Bollinger Road to the south. The survey area is depicted in Appendix A.

The purpose of this report is to identify and describe the aquatic resources in the survey area prior to proposed creek rehabilitation work to stabilize erosional features along the streambanks. This report facilitates efforts to document aquatic resource boundary determinations for review by regulatory authorities and provide background information.

## Chapter 2. Location

The proposed project area is along the Calabazas Creek channel occurring in Cupertino, Santa Clara County, California. The channel runs roughly northwest-southeast through residential and developed areas. The survey area is bounded to the north (downstream end) by the Miller Avenue crossing and at the southern (upstream) end by the Bollinger Road crossing. This survey area is in Township 7S and Range 1W of the U.S. Geological Survey (USGS) Cupertino Quadrangle, latitudes between 37.31011˚ and 37.31963˚ north and longitudes between -122.01412˚ and -122.01998˚ west. The vicinity of the survey area is depicted in Figures 1 and 2 (Appendix B).

In the survey area the Calabazas Creek corridor is largely restricted from public access by residential fences and chain link fencing with gated access controlled by the District. The channel can be accessed from the eastern bank by an emergency creek access gate north of an athletic field at Creekside Park (10455 Miller Avenue, Cupertino, California 95014). District permission is required for access to Calabazas Creek.

Directions to the survey area from San Francisco, California are as follows:

- Take U.S. Route 101 (US-101) South toward San Jose;
- From US-101, take exit 389B to California State Route 85 (CA-85) South towards Santa Cruz/Cupertino;
- From CA-85, take exit 19A to merge onto Interstate 280 (I-280) South towards San Jose;
- From I-280, take exit 10 for Wolfe Road;
- Turn right on Wolfe Road and continue for approximately half a mile;
- Continue onto Miller Avenue for approximately half a mile;
- Turn right into the Creekside Park parking lot (10455 Miller Avenue);
- Follow the bicycle path north of the parking lot to the northwestern edge of the athletic fields. The emergency creek access gate is located next to the bicycle path.

## Chapter 3. Methods

An aquatic resource delineation was conducted in the survey area on September 18 and 19, 2018, by Elan Alford, a plant ecologist at WRA with six years of experience, with field assistance from Rei Scampavia, a biologist at WRA. The delineation was conducted in accordance with the 1987 "Corps of Engineers Wetland Delineation Manual" (Corps 1987), Version 2.0 of the Arid West regional supplement (Corps 2008), and "A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States" (Lichvar and McColley 2008).

Prior to the field delineation, the following informational resources were reviewed:

- Current and historic aerial imagery from Google Earth (2018) and Nationwide Environmental Title Research (NETR 2018);
- County topographic geographic information system (GIS) files;
- National Wetland Inventory (NWI) maps (USFWS 2018; see Appendix B);
- Spatial precipitation estimate data from the Parameter-Elevation Regressions on Independent Slopes Model (PRISM) (PRISM 2018); and
- Soil map for Santa Clara Area, California from the Natural Resources Conservation Service's Web Soil Survey (NRCS 2018).

During the field delineation of the 10.86-acre survey area, the entire channel bottom was traversed by foot. It was determined that Calabazas and Regnart Creeks were the only potential waters of the U.S. in the survey area. Five OHWM stream transects were selected along the survey area (see Appendix E). One wetland delineation data sheet was completed in accordance with Lichvar and McColley (2008) (see Appendix E), and photographs of representative conditions were taken (see Appendix C). Notes were taken on the data sheets of general resource conditions. A global positioning system (GPS) was used to mark the OHWM at each delineation transect. Additional OHWM GPS data was collected along other portions of the channel during the survey. A series of patches of hydrophytic vegetation, dominated by smartweed species (*Persicaria* sp.), occurred in several spots on riverwash entisols below the OHWM and were included in the intermittent stream.

Digitizing of the delineation in the office used the field observations, County topographic data (one foot contours), and aerial imagery to extrapolate the OHWM to the entire survey area. Mapped waters were classified according to the Federal Geographic Data Committee's (FGDC) "Classification of Wetlands and Deepwater Habitats of the United States" (FGDC 2013), which is adapted from Cowardin et al. (1979). The aquatic resource delineation map was prepared in accordance with the "Updated Map and Drawing Standards for the South Pacific Division Regulatory Program" (Corps 2016).

# Chapter 4. Existing Conditions

## 4.1 Landscape Setting

The survey area is along a section of Calabazas Creek between Miller Avenue and Bollinger Road. In the survey area, Regnart Creek joins Calabazas Creek. The channel reach in the survey area is an incised feature located in a relatively flat urban setting. Calabazas Creek flows northwest into Guadalupe Slough, which empties into South San Francisco Bay.

Much the Calabazas Creek watershed occurs in highly urbanized areas, and over half of open channel miles have been engineered. There are approximately 14 miles of engineered channel and 13 miles of natural creek bed (SCVURPPP 2018). A review of historic aerial photos determined that the survey area vicinity was previously agricultural fields that were converted to residential development in the 1950s and 1960s. In the survey area, Calabazas and Regnart Creeks are currently surrounded by a highly-developed, residential area.

Areas surrounding the survey area consist of asphalt, pavement, buildings, and managed open spaces (lawns, private gardens, and a City park with athletic fields). Miller Avenue, a paved four-lane road, crosses Calabazas Creek at the northeastern survey area border (downstream). Bollinger Road, a paved four-lane road, crosses Calabazas Creek at the southwestern survey area border (upstream). Private residences and urban development line the top of bank to the east and west of Calabazas Creek. Continuous fencing occurs at and near the top of bank of the entire survey area, limiting access to the channel from surrounding areas.

The proposed project is designed to stabilize erosional features located on the creek banks. Prior work for the Calabazas Creek Flood Control Protection Project involved District repair of 14 severely eroding banks along the creek corridor between Miller Avenue and Wardell Road (SCVWD 2018), which includes this survey area. In the survey area several bank segments on the east and west sides have already been stabilized with a combination of rip-rap, sack-crete, and log revetment, and several other features have been temporarily stabilized with tarps and sandbags.

During the field delineation, climate conditions were typical for the season. It was clear, sunny, and warm. It had not rained for approximately five months prior to the delineation. The Calabazas and Regnart Creek channels were dry (see Appendix C).

## 4.2 Aquatic Resources

Aquatic resources delineated in the survey area are summarized in Table 1 and mapped in Appendix A. The 10.86-acre survey area includes 2.21 acres of Calabazas and Regnart Creeks, which exhibit an OHWM and ultimately flow to the South San Francisco Bay. In the survey area, Calabazas and Regnart Creeks are classified as intermittent riverine features, according to the Federal Geographic Data Committee (FGDC) (2013), and as riverine by NWI (see Appendix B).

Water flow in Calabazas Creek is typically concentrated in a single-thread, relatively low-gradient channel below the OHWM elevation (see photographs in Appendix C). This channel is largely unvegetated with a bed of cobble, gravel and coarse sand. Many areas of the creek bed were covered by a dry algal mat at the time of the survey. The segments of Calabazas Creek that pass under Miller Avenue and Bollinger Road have cement channel sides and beds, and the segment of Regnart Creek that feeds into Calabazas Creek is a trapezoidal channel with cement sides and an earthen bed. Regnart Creek is approximately eight feet higher in elevation than Calabazas Creek, and flows into Calabaza Creek over a cement apron. This change in elevation has resulted

in a scour hole in the Calabazas Creek bed at the point where it is joined by Regnart Creek.

The mature riparian tree canopy shades much of the channel and the channel bed is largely unvegetated. In some channel-bed locations smartweed-dominated areas of in-channel hydrophytic vegetation occur on entisols along and below the OHWM, but these features are not considered to be wetlands (see SP1 in Appendix D).

**Table 1. Aquatic Resources in the Survey Area**

| Classification[1,2] | Latitude/Longitude | Size[3] (acres) | Length (feet) |
|---|---|---|---|
| Non-wetland Waters: | | 2.21 | 4,714 |
| Intermittent stream | 37.314167˚ N/ 122.017222˚ W | 2.21 | 4,714 |
| **Total Waters of the U.S.** | | 2.21 | 4,714 |

[1] See Appendix A maps for locations
[2] Per FGDC (2013)
[3] Subject to verification by the Corps

Along several sections of channel bank, erosion has created steep earthen bank walls. Stream OHWM indicators include breaks in bank slope, changes in vegetation cover, and the presence of wrack, algal crust, water staining, and scour (see Appendices C and E). Above the OHWM, vegetation is dominated by coast live oak (*Quercus agrifolia*; NI), valley oak (*Quercus lobata*; FACU), holly oak (*Quercus ilex*; NI), black walnut (*Juglans hindsii*; FAC), and buckeye (*Aesculus californica*; NI) that occur in riparian forest on channel banks. The riparian forest understory is dominated by invasive nonnative species including English ivy (*Hedera helix*; NI), giant reed (*Arundo donax*; FACW), cape ivy (*Delairea odorata*; NI), periwinkle (*Vinca major*; NI), and bull thistle (*Cirsium vulgare*; FACU), and non-native grasses such as Pampas grass (*Cortaderia selloana*; FACU), Dallis grass (*Paspalum dilatatum*; FAC), Bermuda grass (*Cynodon dactylon*; FACU), Italian rye grass (*Festuca perennis;* FAC), and ripgut brome (*Bromus diandrus*; NI) (see Appendix D). Below the OHWM the channel was largely unvegetated but water pepper (*Persicaria hydropiperoides*, OBL), tall flatsedge (*Cyperus eragrostis*, FACW), horsetail (*Equisetum* sp.), Jersey cudweed (*Psuedognaphalium luteoalbum*, FAC), slender willow herb (*Epilobium ciliatum*, FACW), Italian rye grass, bristly ox-tongue (*Helminthotheca echioides*, FAC), fluellin species (*Kickxia* sp., UPL and NI), and cocklebur (*Xanthium strumarium*, FAC) were observed.

Erosional features, such as steeply eroded and collapsed banks, complicated the determination of the OHWM in some sections of Calabazas Creek (see photographs 12, 13, and 18 in Appendix C). In these sections, bank features associated with the OHWM such as break in bank slope were not visible. In the case of collapsed banks, the channel width below the OHWM was usually constricted as well. However, the presence of wrack and water staining on boulders within the channel typically corresponded with a clear OHWM on at least one bank, which was used to extrapolate the OHWM on the eroded or collapsed opposite bank. Some areas of collapsed banks included exposed felled tree roots with incised scour holes extending beneath the collapsed bank. In these areas, the extent of the scour hole was considered within the OHWM. Six culverts greater than 20-inches diameter and constructed with cement, steel, or plastic are located on channel banks and flows would outfall into Calabazas Creek. All but one of these culverts are higher than the channel bed and are mapped along the channel. Culvert C2 is a partially sedimented culvert

that is inside OHWM and thus considered to be jurisdictional.

## Chapter 5. References


Corps (U.S. Army Corps of Engineers). 1987. Field Guide for Wetland Delineation: 1987 Corps of Engineers Manual. Prepared by Wetland Training Institute, Glenwood, New Mexico.

Corps. 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). Corps, Environmental Laboratory, ERDC/EL TR-08-28.

Corps. 2016. Updated Map and Drawing Standards for the South Pacific Division Regulatory Program. September 24, 2018. Accessed at: http://www.spd.usace.army.mil/Missions/Regulatory/ Public-Notices-and-References/Article/651327/updated-map-and-drawing-standards/

Cowardin, L. M., V. Carter, F. C. Golet, and E. T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U.S. Fish and Wildlife Service. FWS/OBS-79/31. Washington, DC.

FGDC (Federal Geographic Data Committee). 2013. Classification of wetlands and deepwater habitats of the United States. FGDC-STD-004-2013. Second Edition. Wetlands Subcommittee, Federal Geographic Data Committee and U.S. Fish and Wildlife Service, Washington, DC.

Google Earth. 2018. Aerial Imagery 1993-2018. September, 2018.

Lichvar, R.W. and S.M. McColley. 2008. A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States. A Delineation Manual. Corps, Cold Regions Research and Engineering Laboratory, ERDC/CRREL TR-08-12.

Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. The National Wetland Plant List: 2016 wetland ratings. Phytoneuron 2016-30:1–17.

NETR (Nationwide Environmental Title Research). 2018. Historic Aerials 1946-2014. September 14, 2018. Accessed at: https://www.historicaerials.com/.

NRCS (Natural Resources Conservation Service). 2018. Web Soil Survey. September 14, 2018. Accessed at: https://websoilsurvey.sc.egov.usda.gov/.

PRISM (Parameter-Elevation Regressions on Independent Slopes Model). 2018. Data Explorer: Time Series Values for Individual Locations. September 14, 2018. Accessed at: http://www.prism.oregonstate.edu/explorer/

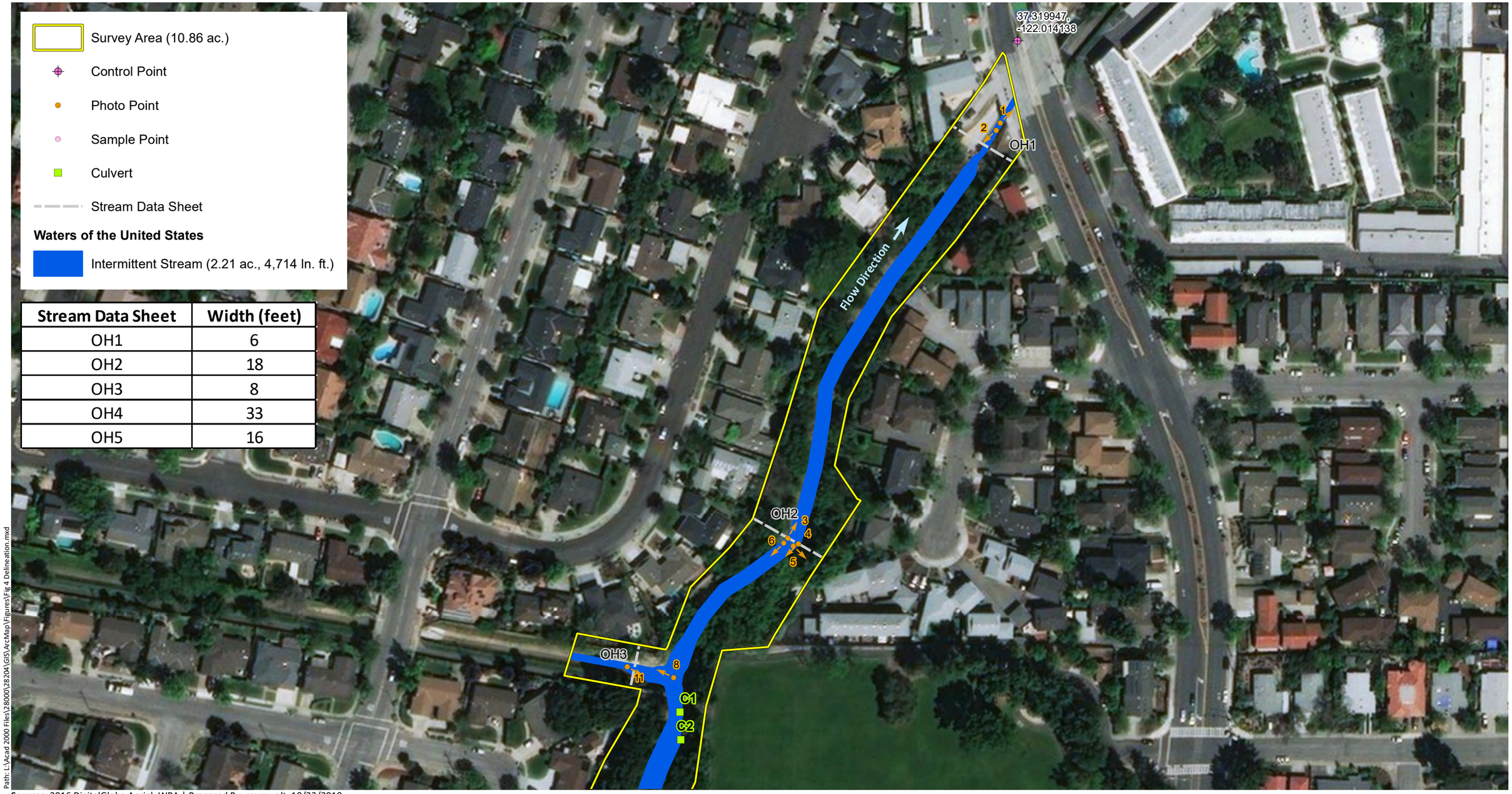
SCURVPPP (Santa Clara Valley Urban Pollution Prevention Program) 2018. Calabazas Watershed. September 24, 2018. Accessed at: http://www.scvurppp-w2k.com/ws_calabazas.shtml

SCVWD (Santa Clara Valley Water District). 2018. Calabazas Creek Flood Protection. September 27, 2018. Accessed at: https://www.valleywater.org/project-updates/creek-river-projects/calabazas-creek-flood-protection

USFWS (U.S. Fish and Wildlife Service). 2018. National Wetland Inventory.

September 14, 2018. Accessed at: https://www.fws.gov/wetlands/data/data-download.html

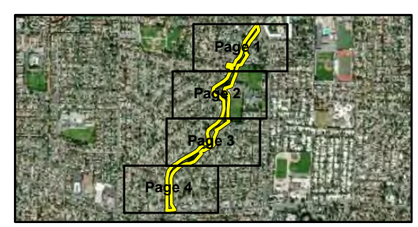
## Appendix A – Aquatic Resource Delineation Map




| Stream Data Sheet | Width (feet) |
|---|---|
| OH1 | 6 |
| OH2 | 18 |
| OH3 | 8 |
| OH4 | 33 |
| OH5 | 16 |

Path: L:\Acad 2000 Files\28000\28204\GIS\ArcMap\Figures\Fig 4 Delineation.mxd

**Sources**: 2016 DigitalGlobe Aerial, WRA | Prepared By: czumwalt, 10/23/2018




Coordinate System: NAD83 State Plane CA Zone III U.S. Ft.
Projection: Lambert Conic
Datum: North America 83

0 125 250 Feet

1 inch = 125 ft.

N

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## Appendix A. Aquatic Resource Delineation - Page 1

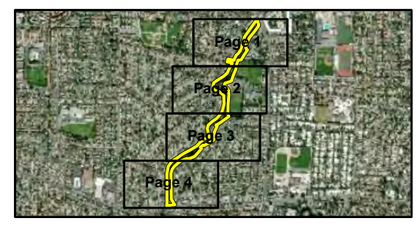
Subject to verification by the US Army Corps of Engineers

Calabazas Creek Rehabilitation Project
Cupertino, California

| Stream Data Sheet | Width (feet) |
|---|---|
| OH1 | 6 |
| OH2 | 18 |
| OH3 | 8 |
| OH4 | 33 |
| OH5 | 16 |

Path: L:\Acad 2000 Files\28000\28.204\GIS\ArcMap\Figures\Fig 4 Delineation.mxd

**Sources**: 2016 DigitalGlobe Aerial, WRA | Prepared By: czumwalt, 10/23/2018




Coordinate System: NAD83 State Plane CA Zone III U.S. Ft.
Projection: Lambert Conic
Datum: North America 83

0 125 250 Feet

1 inch = 125 ft.

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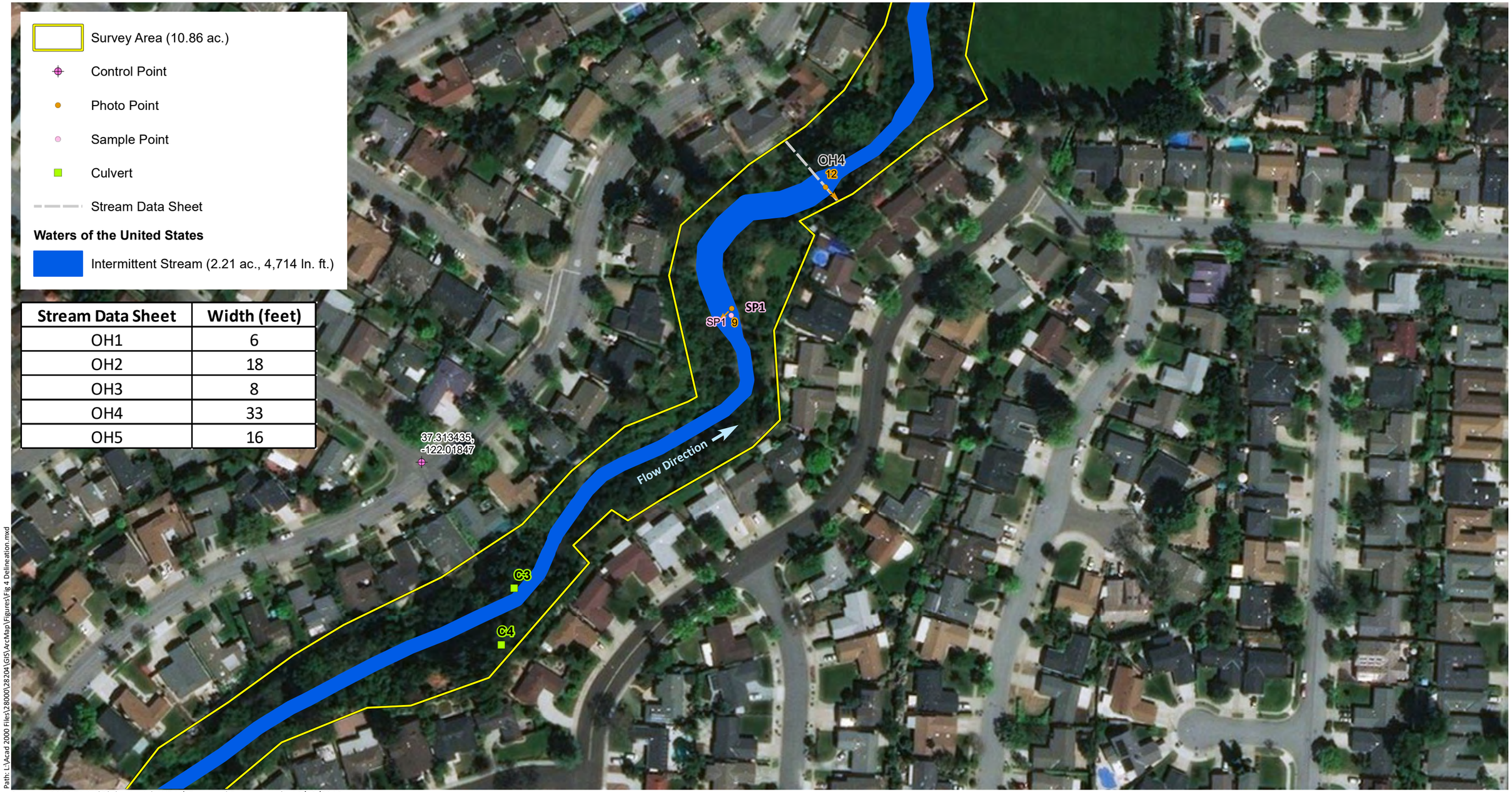
## Appendix A. Aquatic Resource Delineation - Page 2

Subject to verification by the US Army Corps of Engineers

Calabazas Creek Rehabilitation Project
Cupertino, California




| Stream Data Sheet | Width (feet) |
|---|---|
| OH1 | 6 |
| OH2 | 18 |
| OH3 | 8 |
| OH4 | 33 |
| OH5 | 16 |

Path: L:\Acad 2000 Files\28000\28204\GIS\ArcMap\Figures\Fig 4 Delineation.mxd

**Sources**: 2016 DigitalGlobe Aerial, WRA | Prepared By: czumwalt, 10/23/2018

Coordinate System: NAD83 State Plane CA Zone III U.S. Ft.
Projection: Lambert Conic
Datum: North America 83

0 125 250 Feet

1 inch = 125 ft.

N

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## Appendix A. Aquatic Resource Delineation - Page 3

Subject to verification by the US Army Corps of Engineers

Calabazas Creek Rehabilitation Project
Cupertino, California

| Stream Data Sheet | Width (feet) |
|---|---|
| OH1 | 6 |
| OH2 | 18 |
| OH3 | 8 |
| OH4 | 33 |
| OH5 | 16 |

Path: L:\Acad 2000 Files\28000\28204\GIS\ArcMap\Figures\Fig 4 Delineation.mxd

**Sources**: 2016 DigitalGlobe Aerial, WRA | Prepared By: czumwalt, 10/23/2018

Coordinate System: NAD83 State Plane CA Zone III U.S. Ft.
Projection: Lambert Conic
Datum: North America 83

0 125 250 Feet

1 inch = 125 ft.

N

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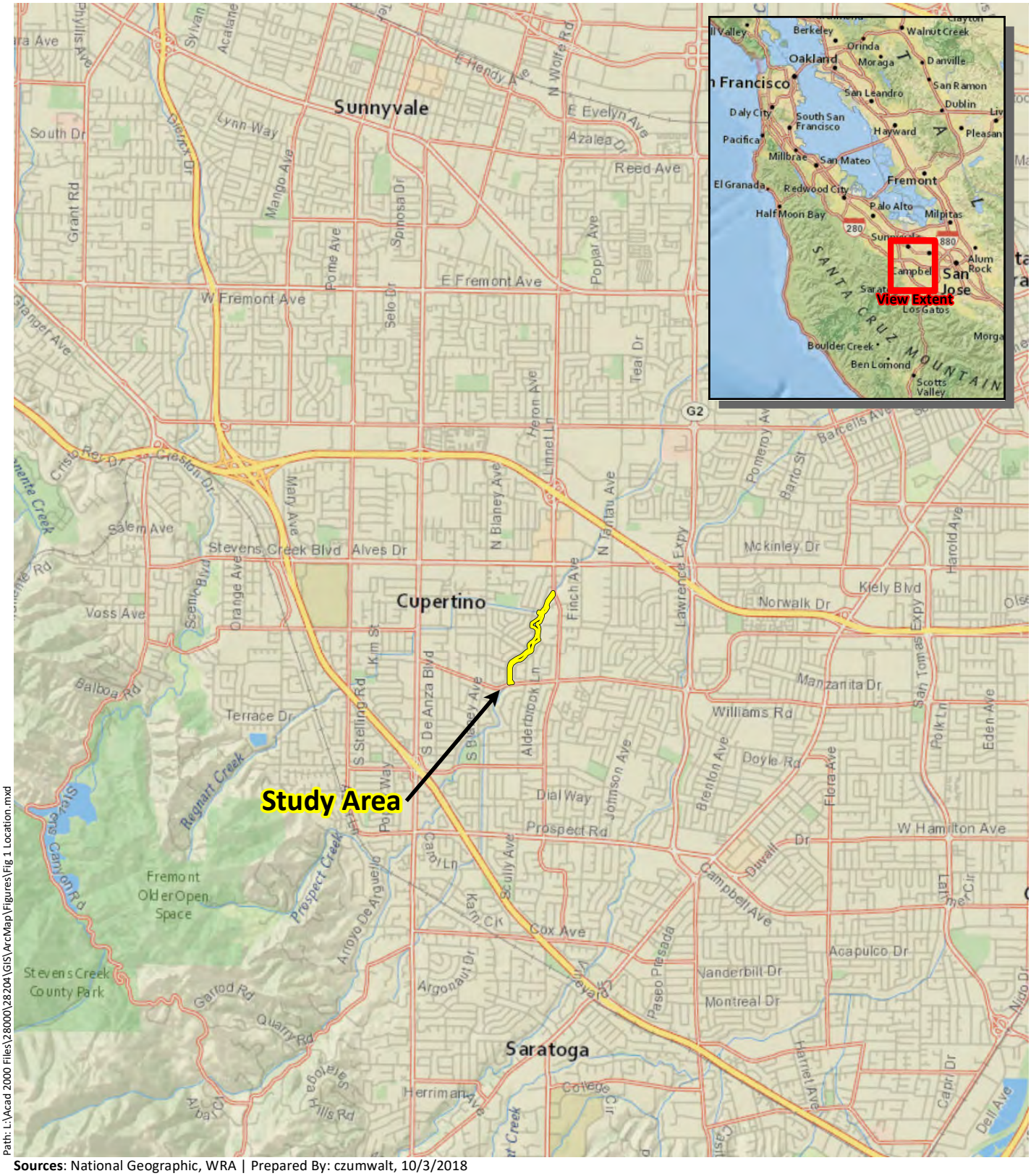
## Appendix A. Aquatic Resource Delineation - Page 4

Subject to verification by the US Army Corps of Engineers

Calabazas Creek Rehabilitation Project
Cupertino, California

## Appendix B – Supporting Maps

This appendix includes a vicinity map of the survey area, the NWI map, and the NRCS soil maps and reports for the survey area.




**Sources**: National Geographic, WRA | Prepared By: czumwalt, 10/3/2018

# Figure 1. Study Area Location

Calabazas Creek Rehabilitation Project
Cupertino, California

0 0.5 1 Miles

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Path: L:\Acad 2000 Files\28000\28204\GIS\ArcMap\Figures\Fig 2 Project Area.mxd

**Sources**: National Geographic, WRA | Prepared By: czumwalt, 10/8/2018

# Figure 2. Project Area

Calabazas Creek Rehabilitation Project
Cupertino, California

0 275 550 Feet

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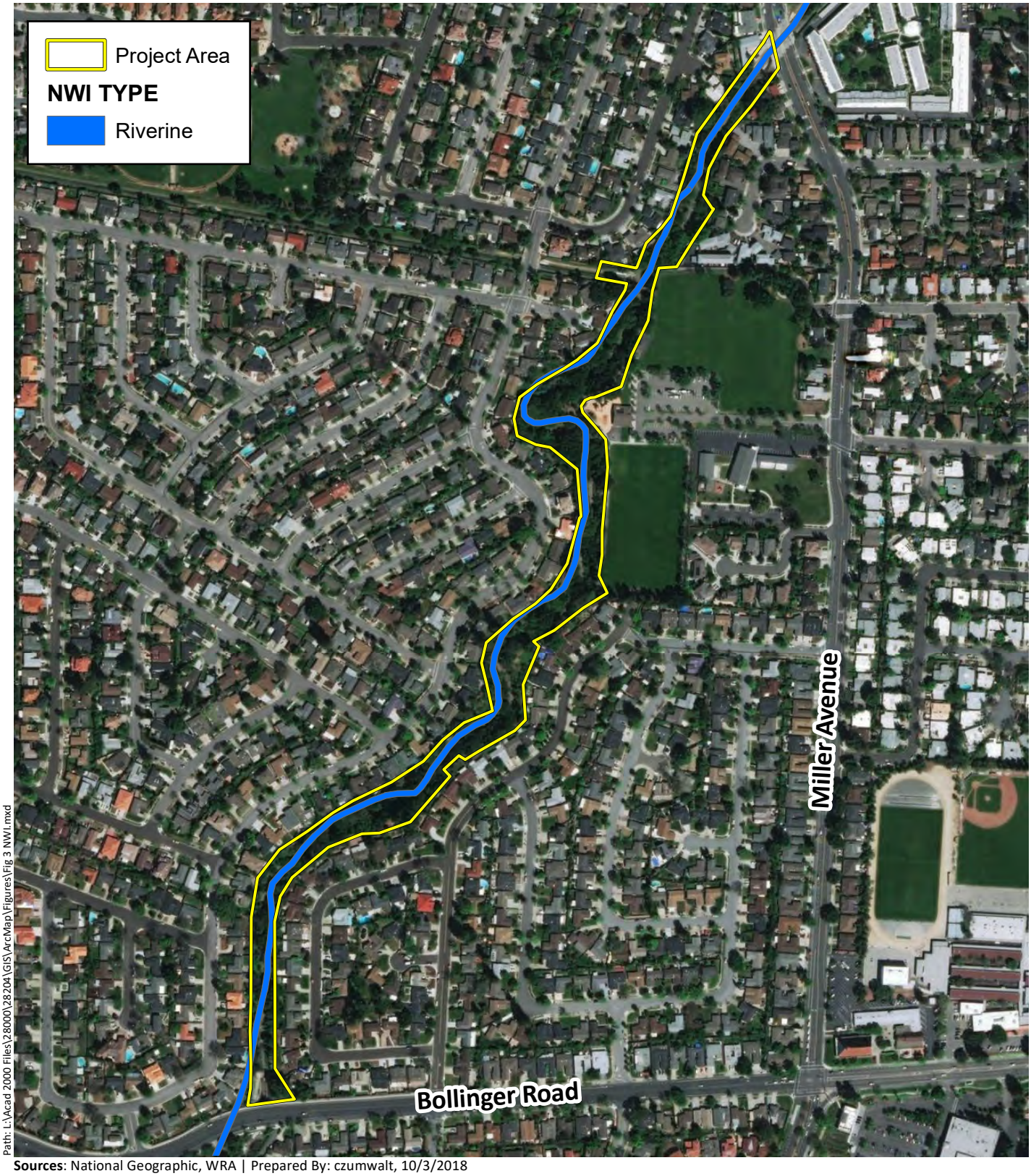


Path: L:\Acad 2000 Files\28000\28204\GIS\ArcMap\Figures\Fig 3 NWI.mxd

**Sources**: National Geographic, WRA | Prepared By: czumwalt, 10/3/2018

# Figure 3. National Wetlands Inventory

Calabazas Creek Rehabilitation Project
Cupertino, California

0 250 500 Feet

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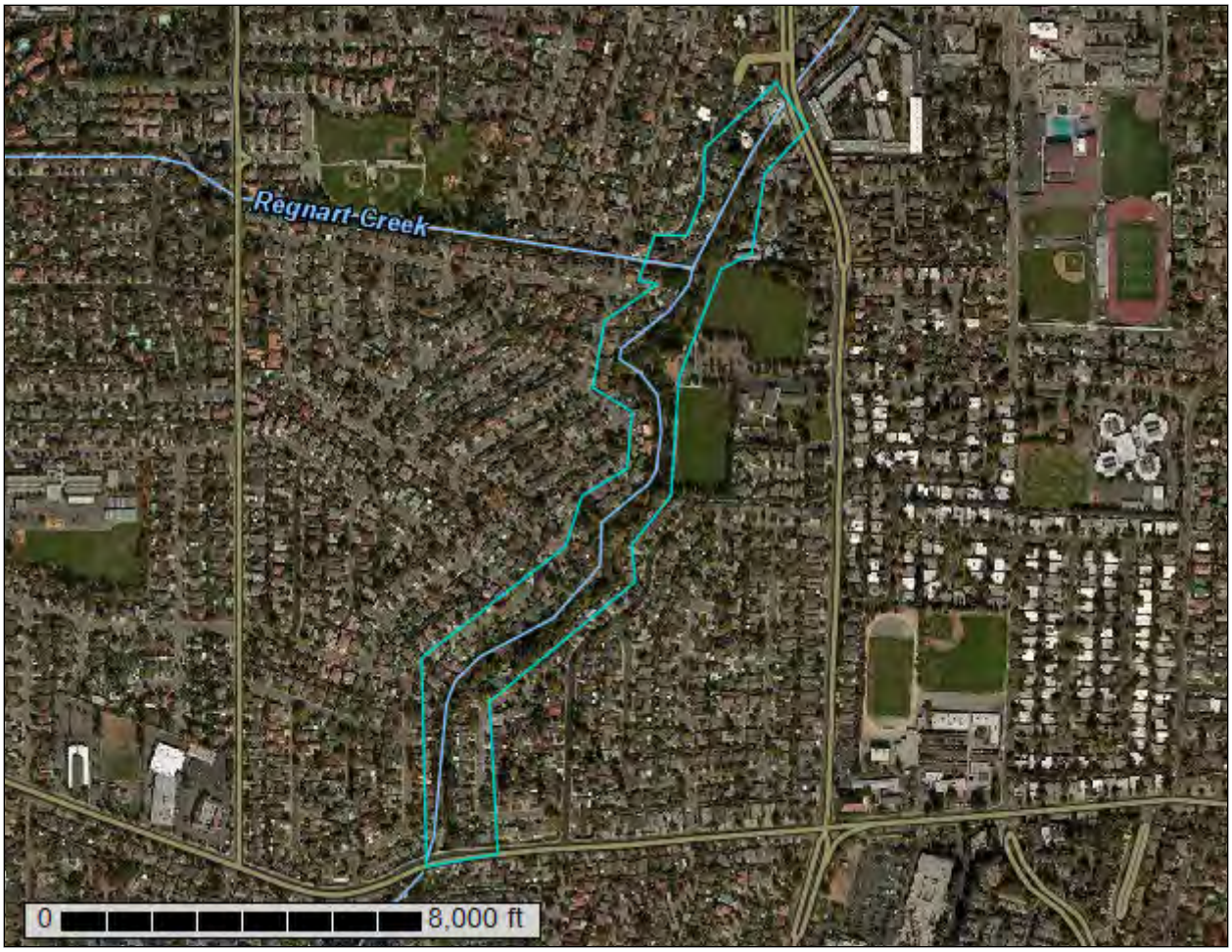
United States Department of Agriculture

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

# Custom Soil Resource Report for Santa Clara Area, California, Western Part

## Calabazas Creek Rehabilitation Project




September 14, 2018

# Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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# How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

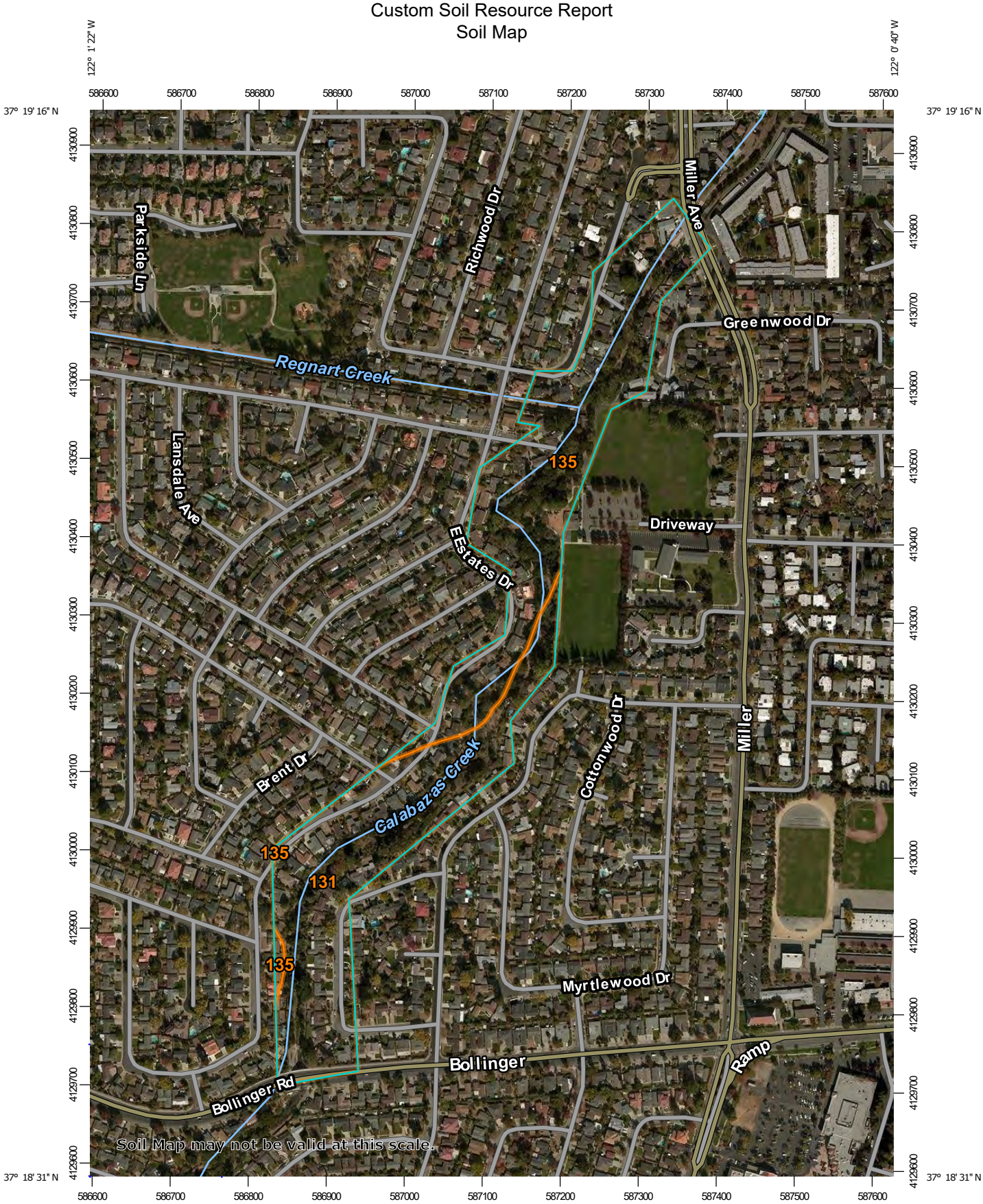
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

# Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.




Map Scale: 1:6,640 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 300 600 1200 1800

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

## MAP LEGEND

**Area of Interest (AOI)**

Area of Interest (AOI)

**Soils**

Soil Map Unit Polygons

Soil Map Unit Lines

Soil Map Unit Points

**Special Point Features**

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

**Water Features**

Streams and Canals

**Transportation**

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

**Background**

Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Santa Clara Area, California, Western Part
Survey Area Data: Version 6, Sep 8, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 26, 2010—Nov 3, 2013

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

# Map Unit Legend

| Map Unit Symbol | Map Unit Name | Acres in AOI | Percent of AOI |
|---|---|---|---|
| 131 | Urban land-Elpaloalto complex, 0 to 2 percent slopes | 15.0 | 48.3% |
| 135 | Urban land-Stevenscreek complex, 0 to 2 percent slopes | 16.0 | 51.7% |
| **Totals for Area of Interest** | | **31.0** | **100.0%** |

# Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the

development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

# Santa Clara Area, California, Western Part

## 131—Urban land-Elpaloalto complex, 0 to 2 percent slopes

### Map Unit Setting

*National map unit symbol:* 1nszz
*Elevation:* 10 to 390 feet
*Mean annual precipitation:* 14 to 24 inches
*Mean annual air temperature:* 57 to 61 degrees F
*Frost-free period:* 275 to 325 days
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Urban land:* 70 percent
*Elpaloalto and similar soils:* 23 percent
*Minor components:* 7 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Urban Land

#### Setting

*Landform:* Alluvial fans
*Landform position (three-dimensional):* Talf
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Disturbed and human transported material

### Description of Elpaloalto

#### Setting

*Landform:* Alluvial fans
*Landform position (three-dimensional):* Talf
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Alluvium derived from metamorphic and sedimentary rock and/or alluvium derived from metavolcanics

#### Typical profile

*Oi - 0 to 8 inches:* slightly decomposed plant material
*A - 8 to 17 inches:* clay loam
*Bw1 - 17 to 26 inches:* silty clay loam
*Bw2 - 26 to 35 inches:* silty clay loam
*Bw3 - 35 to 47 inches:* silty clay loam
*Bw4 - 47 to 71 inches:* silty clay loam
*C - 71 to 94 inches:* silty clay loam

#### Properties and qualities

*Slope:* 0 to 2 percent
*Depth to restrictive feature:* More than 80 inches
*Natural drainage class:* Well drained
*Runoff class:* Low
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.57 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None

*Frequency of ponding:* None
*Salinity, maximum in profile:* Nonsaline to slightly saline (0.4 to 4.0 mmhos/cm)
*Sodium adsorption ratio, maximum in profile:* 2.0
*Available water storage in profile:* Very high (about 13.4 inches)

**Interpretive groups**
*Land capability classification (irrigated):* 1
*Land capability classification (nonirrigated):* 3s
*Hydrologic Soil Group:* C
*Hydric soil rating:* No

**Minor Components**

**Still**
*Percent of map unit:* 5 percent
*Landform:* Alluvial fans, flood plains
*Landform position (three-dimensional):* Talf
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Hydric soil rating:* No

**Hangerone, drained**
*Percent of map unit:* 2 percent
*Landform:* Basin floors
*Landform position (three-dimensional):* Talf
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Hydric soil rating:* Yes

## 135—Urban land-Stevenscreek complex, 0 to 2 percent slopes

**Map Unit Setting**
*National map unit symbol:* 1nszy
*Elevation:* 20 to 540 feet
*Mean annual precipitation:* 14 to 24 inches
*Mean annual air temperature:* 57 to 61 degrees F
*Frost-free period:* 275 to 325 days
*Farmland classification:* Not prime farmland

**Map Unit Composition**
*Urban land:* 70 percent
*Stevenscreek and similar soils:* 25 percent
*Minor components:* 5 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Urban Land**

**Setting**
*Landform:* Alluvial fans
*Landform position (three-dimensional):* Talf

*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Disturbed and human transported material

**Description of Stevenscreek**

**Setting**

*Landform:* Alluvial fans
*Landform position (two-dimensional):* Toeslope
*Landform position (three-dimensional):* Talf
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Alluvium derived from metamorphic and sedimentary rock and/or alluvium derived from metavolcanics

**Typical profile**

*A1 - 0 to 2 inches:* sandy loam
*A2 - 2 to 9 inches:* silt loam
*ABt - 9 to 18 inches:* silty clay loam
*Bt1 - 18 to 27 inches:* silty clay loam
*Bt2 - 27 to 39 inches:* clay loam
*BC - 39 to 61 inches:* sandy clay loam
*C - 61 to 70 inches:* sandy clay loam

**Properties and qualities**

*Slope:* 0 to 2 percent
*Depth to restrictive feature:* More than 80 inches
*Natural drainage class:* Well drained
*Runoff class:* Low
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.57 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Calcium carbonate, maximum in profile:* 5 percent
*Salinity, maximum in profile:* Nonsaline (0.0 to 1.0 mmhos/cm)
*Available water storage in profile:* High (about 10.2 inches)

**Interpretive groups**

*Land capability classification (irrigated):* 1
*Land capability classification (nonirrigated):* 3s
*Hydrologic Soil Group:* C
*Hydric soil rating:* No

**Minor Components**

**Flaskan**

*Percent of map unit:* 5 percent
*Landform:* Alluvial fans
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Hydric soil rating:* No

# Soil Information for All Uses

## Suitabilities and Limitations for Use

The Suitabilities and Limitations for Use section includes various soil interpretations displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each interpretation.

## Land Classifications

Land Classifications are specified land use and management groupings that are assigned to soil areas because combinations of soil have similar behavior for specified practices. Most are based on soil properties and other factors that directly influence the specific use of the soil. Example classifications include ecological site classification, farmland classification, irrigated and nonirrigated land capability classification, and hydric rating.

### Hydric Rating by Map Unit (Calabazas Creek Rehabilitation Project)

This rating indicates the percentage of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is rated based on its respective components and the percentage of each component within the map unit.

The thematic map is color coded based on the composition of hydric components. The five color classes are separated as 100 percent hydric components, 66 to 99 percent hydric components, 33 to 65 percent hydric components, 1 to 32 percent hydric components, and less than one percent hydric components.

In Web Soil Survey, the Summary by Map Unit table that is displayed below the map pane contains a column named 'Rating'. In this column the percentage of each map unit that is classified as hydric is displayed.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

References:

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

Map—Hydric Rating by Map Unit (Calabazas Creek Rehabilitation Project)

Map Scale: 1:6,640 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 300 600 1200 1800

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

## MAP LEGEND

**Area of Interest (AOI)**

Area of Interest (AOI)

**Soils**

**Soil Rating Polygons**

Hydric (100%)

Hydric (66 to 99%)

Hydric (33 to 65%)

Hydric (1 to 32%)

Not Hydric (0%)

Not rated or not available

**Soil Rating Lines**

Hydric (100%)

Hydric (66 to 99%)

Hydric (33 to 65%)

Hydric (1 to 32%)

Not Hydric (0%)

Not rated or not available

**Soil Rating Points**

Hydric (100%)

Hydric (66 to 99%)

Hydric (33 to 65%)

Hydric (1 to 32%)

Not Hydric (0%)

Not rated or not available

**Water Features**

Streams and Canals

**Transportation**

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

**Background**

Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Santa Clara Area, California, Western Part
Survey Area Data: Version 6, Sep 8, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 26, 2010—Nov 3, 2013

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Table—Hydric Rating by Map Unit (Calabazas Creek Rehabilitation Project)

| Map unit symbol | Map unit name | Rating | Acres in AOI | Percent of AOI |
|---|---|---|---|---|
| 131 | Urban land-Elpaloalto complex, 0 to 2 percent slopes | 2 | 15.0 | 48.3% |
| 135 | Urban land-Stevenscreek complex, 0 to 2 percent slopes | 0 | 16.0 | 51.7% |
| **Totals for Area of Interest** | | | **31.0** | **100.0%** |

## Rating Options—Hydric Rating by Map Unit (Calabazas Creek Rehabilitation Project)

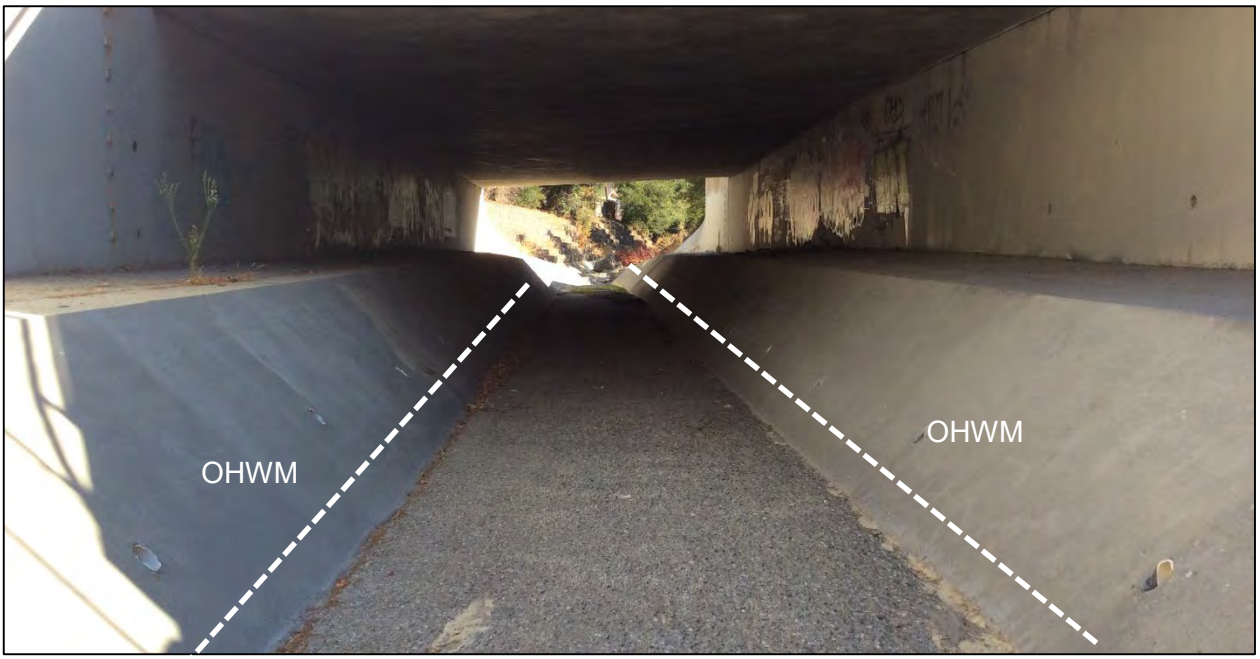
*Aggregation Method:* Percent Present

*Component Percent Cutoff: None Specified*

*Tie-break Rule:* Lower

## Appendix C – On-Site Photographs

All photographs taken by Elan Alford and Rei Scampavia on September 19 and 20, 2018.

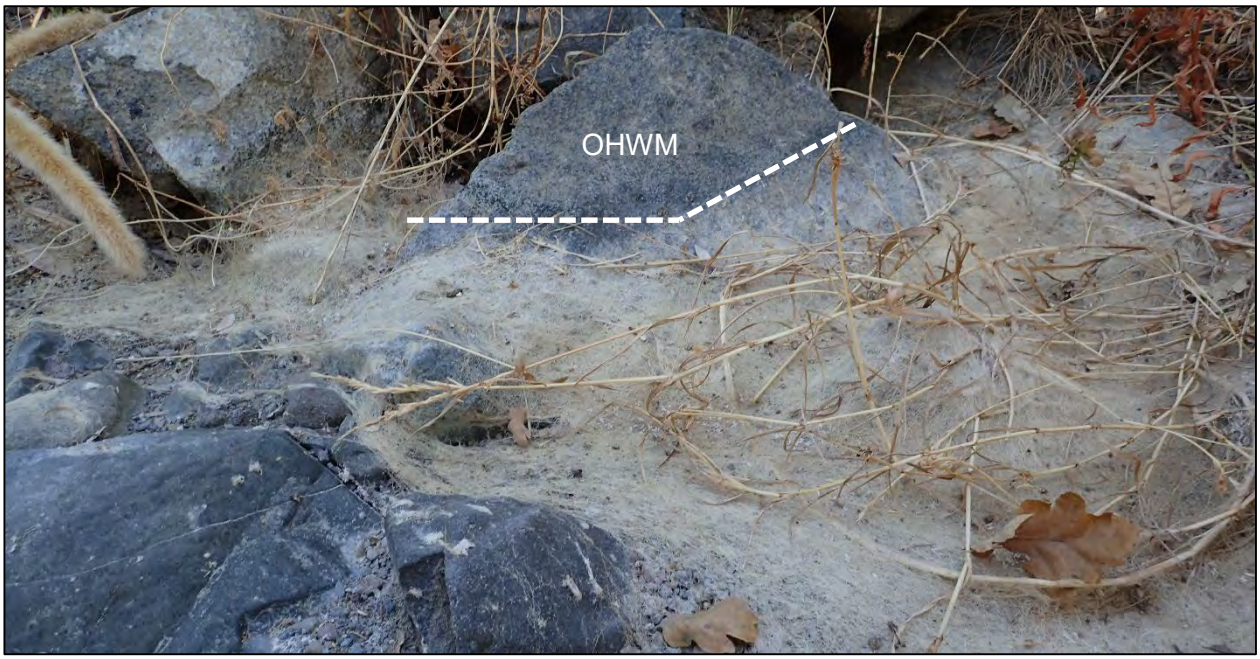



Photograph 1. Downstream (north-facing) view of Calabazas Creek channel (bottom of photo) at OHWM Transect 1. In this section, Calabazas Creek is contained by a cement channel flowing under Miller Avenue (top of photo). OHWM evident by water staining on cement banks.

Photograph 2. Upstream (south-facing) view of Calabazas Creek channel just south of OHWM Transect 1. In this section, Calabazas Creek is contained by a cement channel flowing under Miller Avenue (top of photo). OHWM evident by water staining and algal mat in channel bed. Upstream in the earthen channel bed, change in vegetation cover is one of the OHWM indicators.

Photograph 3. West bank of Calabazas Creek at OHWM Transect 2, facing north. OHWM is evident under an overhanging willow (*Salix* sp.) by a change in wrack vegetation cover that corresponds to water staining on the east bank.

Photograph 4. East bank (facing south) of Calabazas Creek at OHWM Transect 2. OHWM is evident from a distinct water stain line on riprap placed along the bank. The sparsely vegetated gravel and coarse sand channel bed is covered in spots by a dried algal mat. Change in vegetation cover is apparent at the OHWM on the bank.




Photograph 5. East bank of Calabazas Creek at OHWM Transect 2. A dried algal mat covers much of the channel bed throughout the stretch of creek in the survey area. At Transect 1, the vertical extent of the algal mat corresponded with a water stain line at the OHWM.

Photograph 6. Sack-crete wall stabilizing the west bank of Calabazas Creek south of OHWM Transect 2. Uninterrupted lines of residential fences (top) stretch along both sides of the creek just beyond the top of bank for the entirety of the survey area.

Photograph 7. Regnart Creek at OHWM Transect 3, facing east and looking downstream at the confluence of Regnart and Calabazas Creeks. Regnart Creek is a trapezoidal-shaped cement sided channel with an earthen bed. The OHWM is evident from a water stain on the cement and a change in vegetation (the absence of mosses). A dried algal mat covers much of the channel bed.

Photograph 8. The confluence of Regnart and Calabazas Creeks, viewed from Calabazas Creek facing west. At Regnart Creek, above the cement lined banks, bare earth banks rise to the top of bank. Regnart Creek is approximately eight feet higher than Calabazas Creek and a cement apron connects Regnart Creek to Calabazas Creek, below which a scour hole (bottom) has developed in the Calabazas Creek bed.

Photograph 9. A patch of *Persicaria hydropiperoides*-dominated vegetation along the western side of the channel bed at Sample Point 1 (SP1). The vegetation at this location is distinct from the dried nonnative annuals above the OHWM and the unvegetated gravel and coarse sand channel bed. A dried algal mat (left) is continuous with the channel bed.

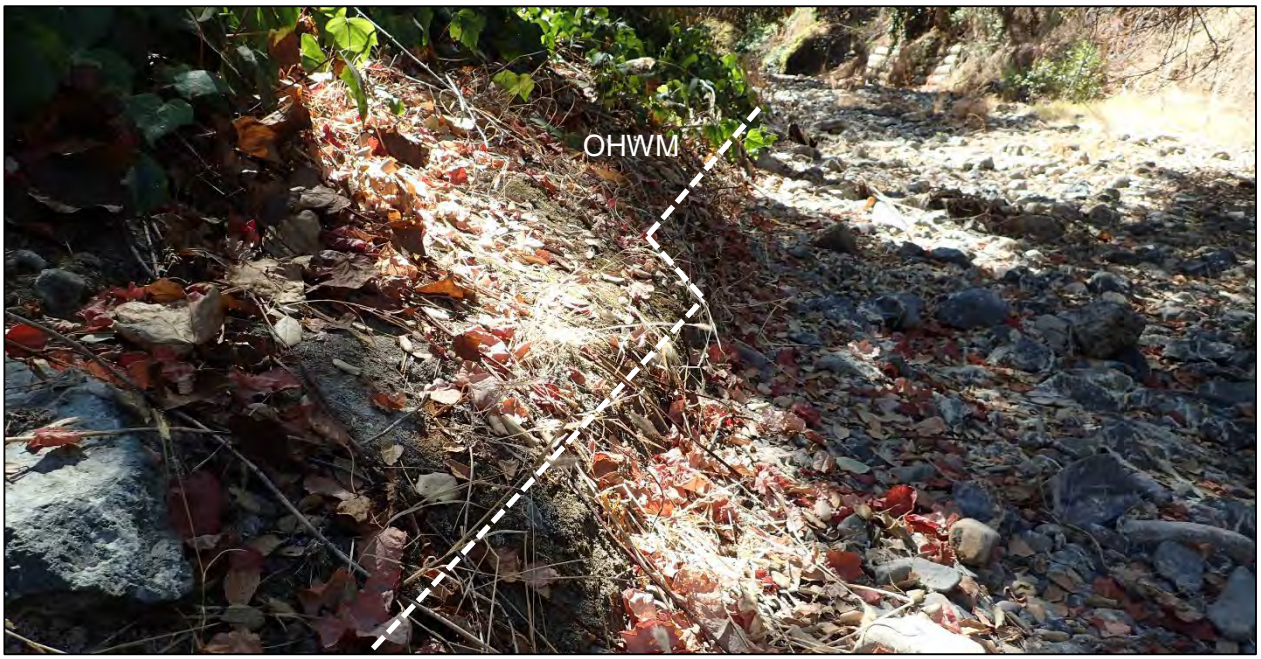
Photograph 10. Another example of a patchy vegetation growing up in the Calabazas Creek channel bed. These features are considered to be vegetated areas below the OHWM.

Photograph 11. Scour lines undercut a sack-crete lined bank indicating OHWM (right). On the opposite bank a break in bank slope and the change in vegetation cover marks the OHWM (left).

Photograph 12. An OHWM scour line (bottom left) along the steeply eroded east bank corresponds with the elevation of a break in bank slope on the opposite bank at OHMW Transect 4. Directly upstream is a reach of rock rip-rap bank stabilization.

Photograph 13. An upstream (south-facing) view of Calabazas Creek at the location of a bank failure on the west bank. The collapse has narrowed the channel by approximately one foot in width. A scour hole has developed beneath the root system of the collapsed tree and the OHWM was measured on the west bank to the extent of the scouring.

Photograph 14. A culvert outfall pipe (C3), embedded in a wall of sack-crete, empties from above the OHWM into Calabazas Creek.




Photograph 15. Upstream (south facing view) of east bank at OHWM Transect 5. A break in bank slope and English Ivy in the background indicate the OHWM. In the foreground the ivy appears to have been disturbed by foot-traffic and is not indicative of the OHWM. The cobble and gravel channel bed is covered by a patchy dried algal mat.

Photograph 16. West bank at OHWM Transect 5. The OWHM is evident by a change in vegetation cover, which corresponds with the break in bank slope on the opposite bank, wrack lines, and water staining on rocks in the channel bed.

Photograph 17. Water stain on a boulder in the channel bed at OHWM Transect 5. The elevation of the water stain corresponds with the OHWM on the east and west banks.

Photograph 18. A black tarp stabilizing riparian bank erosion on the west bank located at OHWM Transect 5.

## Appendix D – Plant List

The following plant species were found in the survey area.

| Species | Common Name | Wetland Indicator Status[1] | Above/Below OHWM? |
|---|---|---|---|
| *Acacia sp.* | - | - | Above |
| *Aesculus californica* | Buckeye | - | Above |
| *Agave americana* | Century plant | - | Above |
| *Ailanthus altissima* | Tree of heaven | FACU | Above |
| *Albizia julibrissin* | Silktree | - | Above |
| *Artemisia douglasiana* | California mugwort | FAC | Above |
| *Arundo donax* | Giant reed | FACW | Above |
| *Baccharis pilularis* | Coyote brush | - | Above |
| *Bromus diandrus* | Ripgut brome | - | Above |
| *Carduus pycnocephalus ssp. pycnocephalus* | Italian thistle | - | Above |
| *Centaurea solstitialis* | Yellow starthistle | - | Below |
| *Chenopodium sp.* | - | - | Below |
| *Cirsium vulgare* | Bullthistle | FACU | Above |
| *Cortaderia selloana* | Pampas grass | FACU | Above |
| *Cotoneaster sp.* | - | - | Above |
| *Cucurbita pepo* | Winter squash cultivar | - | Above |
| *Cynodon dactylon* | Bermuda grass | FACU | Above and Below |
| *Cyperus eragrostis* | Tall cyperus | FACW | Below |
| *Datura sp.* | - | - | Below |
| *Delairea odorata* | Cape ivy | - | Above |
| *Dittrichia graveolens* | Stinkwort | - | Below |
| *Epilobium ciliatum* | Slender willow herb | FACW | Below |
| *Equisetum sp.* | - | - | Above and Below |
| *Erigeron bonariensis* | Flax-leaved horseweed | FACU | Above and Below |
| *Eriobotrya japonica* | Loquat | UPL | Above |
| *Eucalyptus camaldulensis* | Red gum | FAC | Above |
| *Eucalyptus globulus* | Blue gum | - | Above |
| *Euphorbia maculata* | Spotted spurge | UPL | Below |
| *Festuca perennis* | Italian rye grass | FAC | Above and Below |
| *Foeniculum vulgare* | Fennel | - | Above |
| *Fraxinus sp.* | - | - | Above |
| *Genista monspessulana* | French broom | - | Above |
| *Hedera algeriensis* | Algerian ivy | - | Above |
| *Hedera helix* | English ivy | FACU | Above |
| *Helenium sp.* | - | - | Above |
| *Helminthotheca echioides* | Bristly ox-tongue | FAC | Above and Below |
| *Heteromeles arbutifolia* | Toyon | - | Above |
| *Juglans hindsii* | Northern California black | FAC | Above |

| Species | Common Name | Wetland Indicator Status[1] | Above/Below OHWM? |
|---|---|---|---|
| | walnut | | |
| *Kickxia elatine* | Sharp point fluellin | UPL | Below |
| *Kickxia spuria* | Fluellin | - | Below |
| *Lactuca saligna* | Willow lettuce | UPL | Below |
| *Lactuca serriola* | Prickly lettuce | FACU | Above and Below |
| *Lathyrus sp.* | - | - | Above |
| *Lysimachia arvensis* | Scarlet pimpernel | FAC | Below |
| *Malva sp.* | - | - | Above |
| *Marah fabacea* | California man-root | - | Above |
| *Melilotus albus* | White sweetclover | - | Above and Below |
| *Olea europaea* | Olive | - | Above |
| *Opuntia sp.* | - | - | Above |
| *Paspalum dilatatum* | Dallis grass | FAC | Above |
| *Persicaria hydropiperoides* | Water pepper | OBL | Below |
| *Persicaria sp.* | - | - | Below |
| *Phalaris aquatica* | Harding grass | FACU | Above |
| *Phoenix dactylifera* | Date palm | - | Above |
| (*Phyllostachys* sp.) | Bamboo | - | Above |
| *Pinus sp.* | - | - | Above |
| *Plantago major* | Common plantain | FAC | Below |
| *Populus fremontii ssp. fremontii* | Cottonwood | FAC | Above |
| *Prunus sp.* | - | - | Above |
| *Pseudognaphalium luteoalbum* | Jersey cudweed | FAC | Below |
| *Quercus agrifolia* | Coast live oak | - | Above |
| *Quercus ilex* | Holly oak | - | Above |
| *Quercus lobata* | Valley oak | FACU | Above |
| *Rosa californica* | California wild rose | FAC | Above |
| *Rubus armeniacus* | Himalayan blackberry | FAC | Above |
| *Rubus ursinus* | California blackberry | FAC | Above |
| *Rumex conglomeratus* | Green dock | FACW | Above and Below |
| *Rumex crispus* | Curly dock | FAC | Above and Below |
| *Salix sp.* | - | - | Above |
| *Schinus molle* | Peruvian pepper tree | FACU | Above |
| *Sequoia sempervirens* | Coast redwood | - | Above |
| *Silybum marianum* | Milk thistle | - | Above |
| *Solanum sp.* | - | - | Below |
| *Sonchus sp.* | - | - | Below |
| *Symphoricarpos sp.* | - | - | Above |
| *Torilis arvensis* | Field hedge parsley | - | Above |
| *Toxicodendron diversilobum* | Poison oak | FACU | Above |

| Species | Common Name | Wetland Indicator Status[1] | Above/Below OHWM? |
|---|---|---|---|
| *Ulmus minor* | English elm | - | Above |
| *Umbellularia californica* | California bay | FAC | Above |
| *Urtica dioica* | Stinging nettle | FAC | Above and Below |
| *Vinca major* | Vinca | - | Above |
| *Washingtonia robusta* | Washington fan palm | FACW | Above and Below |
| *Xanthium strumarium* | Cocklebur | FAC | Above and Below |
| *Yucca sp.* | - | - | Above |

1 From Lichvar et al. (2016) for the Arid West region:
OBL = occurs in aquatic resources > 99% of time
FACW = occurs in aquatic resources 67-99% of time
FAC = occurs in aquatic resources 34-66% of time
FACU = occurs in aquatic resources 1-33% of time
UPL = occurs in uplands > 99% of time
NI = indicator status not known in this region

## Appendix E – OHWM and Wetland Data Sheets

OHWM sample transects (OH1-OH5) and Sample Point data sheet (SP1) are mapped in Appendix A, and photographs of each are provided in Appendix C.

# Arid West Ephemeral and Intermittent Streams OHWM Datasheet

**Project:** Calabazas Creek Rehabilitation
**Project Number:** 28204
**Stream:** Calabazas Creek
**Investigator(s):** Elan Alford, Rei Scampavia

**Date:** 09/18/2018 **Time:** 10:04 AM
**Town:** Cupertino **State:** California
**Photo begin file#: 1** **Photo end file#: 2**

Y ■ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ■ Is the site significantly disturbed?

**Location Details:**
The transect is located in a cement channel at Miller Avenue.

**Projection:** **Datum:** NAD 83
**Coordinates:** 37°19'10.440" N, 122°0'51.373 W

**Potential anthropogenic influences on the channel system:**
The transect is located in a linear reach of a concreted trapezoidal channel crossing at Miller Avenue.

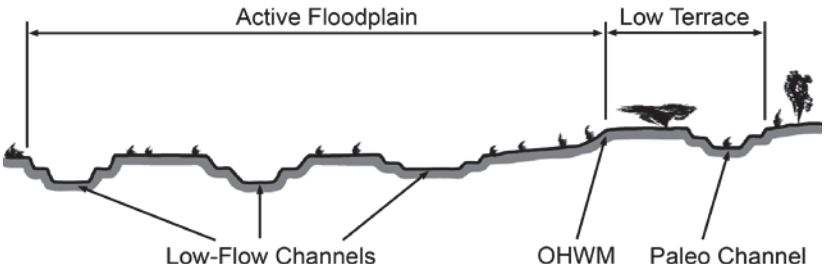
**Brief site description:**
The transect is located in a dry cement channel under a road. The channel runs from south to north (downstream-upstream).

**Checklist of resources (if available):**

- ■ Aerial photography
  Dates: 1948-2018
- ■ Topographic maps
- ☐ Geologic maps
- ☐ Vegetation maps
- ■ Soils maps
- ■ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ■ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

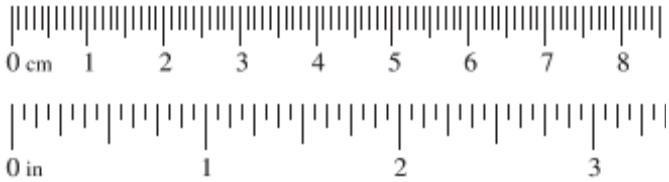



**Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:**

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ■ GPS
   - ■ Digitized on computer
   - ☐ Other:

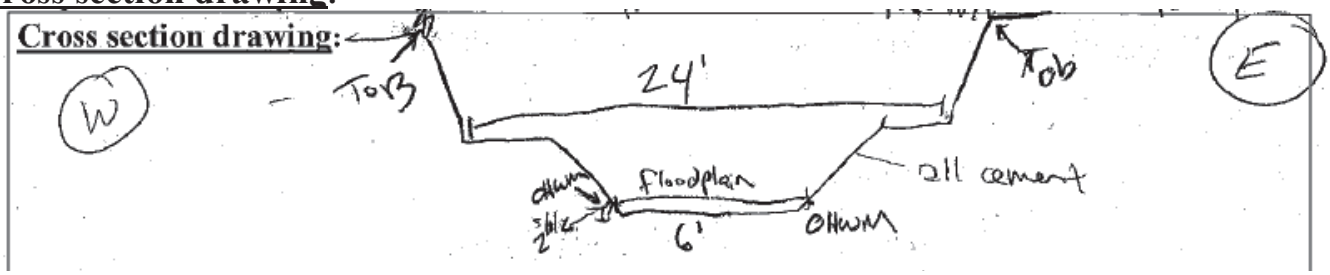
## Wentworth Size Classes

| Inches (in) | | Millimeters (mm) | Wentworth size class | |
|---|---|---|---|---|
| | 10.08 | 256 | Boulder | Gravel |
| | 2.56 | 64 | Cobble | |
| | 0.157 | 4 | Pebble | |
| | 0.079 | 2.00 | Granule | |
| | 0.039 | 1.00 | Very coarse sand | Sand |
| | 0.020 | 0.50 | Coarse sand | |
| 1/2 | 0.0098 | 0.25 | Medium sand | |
| 1/4 | 0.005 | 0.125 | Fine sand | |
| 1/8 | 0.0025 | 0.0625 | Very fine sand | |
| 1/16 | 0.0012 | 0.031 | Coarse silt | Silt |
| 1/32 | 0.00061 | 0.0156 | Medium silt | |
| 1/64 | 0.00031 | 0.0078 | Fine silt | |
| 1/128 | 0.00015 | 0.0039 | Very fine silt | |
| | | | Clay | Mud |



**Project ID: 28204** **Cross section ID: OH1** **Date: 09/18/2018** **Time: 10:04 AM**

**Cross section drawing:**




## OHWM

**GPS point:** OH1a, OH1b

**Indicators:**

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☐ Break in bank slope
- ☒ Other: water staining
- ☒ Other: algal crust

**Comments:**

The water staining on a concreted side slope is located at approximately 2.5-inchs up the slope.

## Floodplain unit:

☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

**GPS point:** OH1

**Characteristics of the floodplain unit:**

Average sediment texture: n/a- concrete

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☒ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

**Indicators:**

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☒ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☒ Other: water staining
- ☒ Other: algal crust
- ☐ Other:

**Comments:**

# Arid West Ephemeral and Intermittent Streams OHWM Datasheet

**Project:** Calabazas Creek Rehabilitation
**Project Number:** 28204
**Stream:** Calabazas Creek
**Investigator(s):** Elan Alford, Rei Scampavia

**Date:** 09/18/2018 **Time:** 11:52 AM
**Town:** Cupertino **State:** California
**Photo begin file#:** 3 **Photo end file#:** 4

Y ■ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ■ Is the site significantly disturbed?

**Location Details:**
~50' north (downstream) of creek entrance gate at Creekside Park

**Projection:** **Datum:** NAD 83
**Coordinates:** 37°19'5.356" N, 122°0'54.566" W

**Potential anthropogenic influences on the channel system:**

There is an access gate to Calabazas Creek about 50 feet upstream. Calabazas Creek is bordered on the east and west banks by residential homes. At this creek section rip-rap stabilizes the eastern bank.

**Brief site description:**

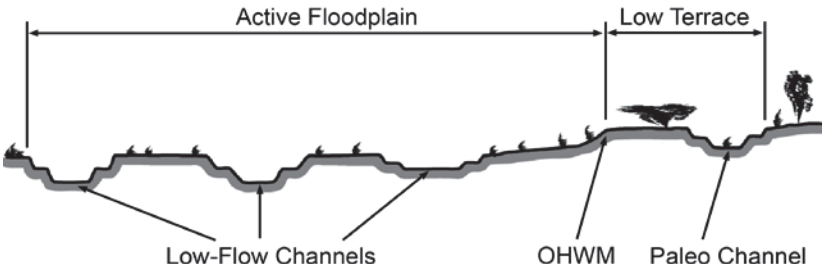
This section of Calabazas Creek is a dry, relatively native channel with earthen banks and a gravel bed with some cobble and coarse sand. The eastern bank is stabilized by rip-rap. There is a sack-crete armored bank (western bank) upstream, and some boulders in the channel downstream.

**Checklist of resources (if available):**

- ■ Aerial photography
  Dates: 1948 - 2018
- ■ Topographic maps
- ☐ Geologic maps
- ☐ Vegetation maps
- ■ Soils maps
- ■ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ■ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

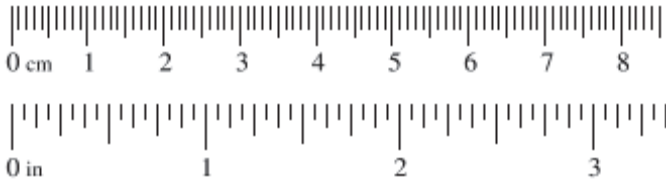



**Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:**

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ■ GPS
   - ■ Digitized on computer
   - ☐ Other:

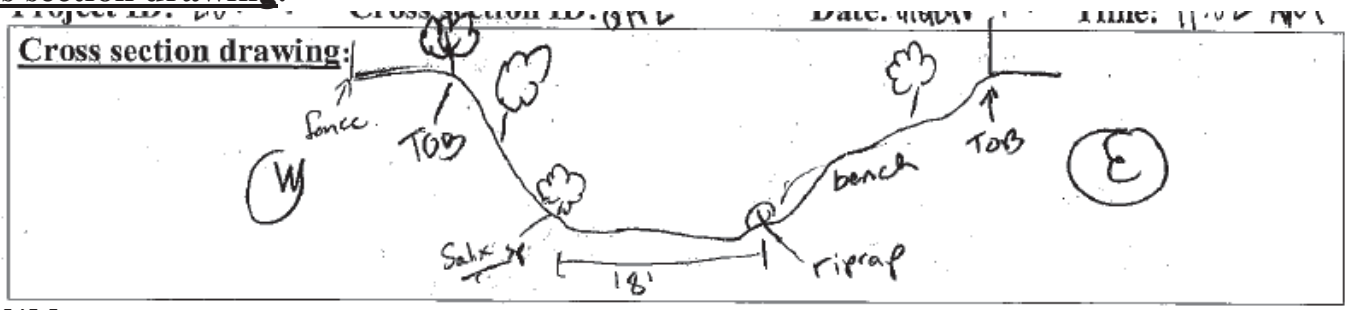
## Wentworth Size Classes

| Inches (in) | | Millimeters (mm) | Wentworth size class | |
|---|---|---|---|---|
| | 10.08 | 256 | Boulder | Gravel |
| | 2.56 | 64 | Cobble | |
| | 0.157 | 4 | Pebble | |
| | 0.079 | 2.00 | Granule | |
| | 0.039 | 1.00 | Very coarse sand | Sand |
| | 0.020 | 0.50 | Coarse sand | |
| 1/2 | 0.0098 | 0.25 | Medium sand | |
| 1/4 | 0.005 | 0.125 | Fine sand | |
| 1/8 | 0.0025 | 0.0625 | Very fine sand | |
| 1/16 | 0.0012 | 0.031 | Coarse silt | Silt |
| 1/32 | 0.00061 | 0.0156 | Medium silt | |
| 1/64 | 0.00031 | 0.0078 | Fine silt | |
| 1/128 | 0.00015 | 0.0039 | Very fine silt | |
| | | | Clay | Mud |



**Project ID: 28204** **Cross section ID: OH2** **Date: 09/18/2018** **Time: 11:52 AM**

**Cross section drawing:**




## OHWM

**GPS point:** OH2

**Indicators:**

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☒ Change in vegetation cover
- ☒ Break in bank slope
- ☒ Other: algal mat, wrack
- ☒ Other: waterstaining

**Comments:**

The unvegetated channel bed is covered by a dried algal mat, which ends at the vegetated earthen western bank. Water staining along rip-rap on the eastern bank also denotes the OHWM.

## Floodplain unit:

☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

**GPS point:** OH2

**Characteristics of the floodplain unit:**

Average sediment texture: gravel

Total veg cover: 4 % Tree: 4 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☒ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

**Indicators:**

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☒ Presence of bed and bank
- ☐ Benches
- ☒ Soil development
- ☒ Surface relief
- ☒ Other: algal mat
- ☐ Other:
- ☐ Other:

**Comments:** The channel itself is unvegetated with some willow (Salix sp.; FACW) overhang. The channel bed contains a rocky entosol riverwash soil, while the western bank is earthen. A dry algal mat also separates the channel below and above the the OHWM.

# Arid West Ephemeral and Intermittent Streams OHWM Datasheet

**Project:** Calabazas Creek Rehabilitation
**Project Number:** 28204
**Stream:** Regnart Creek
**Investigator(s):** Elan Alford, Rei Scampavia

**Date:** 09/18/2018 **Time:** 12:36 PM
**Town:** Cupertino **State:** California
**Photo begin file#: 7** **Photo end file#: 8**

Y ■ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ■ Is the site significantly disturbed?

**Location Details:**
Confluence of Regnart Creek and Calabazas Creek

**Projection:** **Datum:** NAD 83
**Coordinates:** 37°19'3.578" N, 122°0'56.952" W

**Potential anthropogenic influences on the channel system:**

This section of Regnart Creek has cement sides. A walking trail borders the south side of the channel, and residential homes are above the top of bank north of the channel.

**Brief site description:**

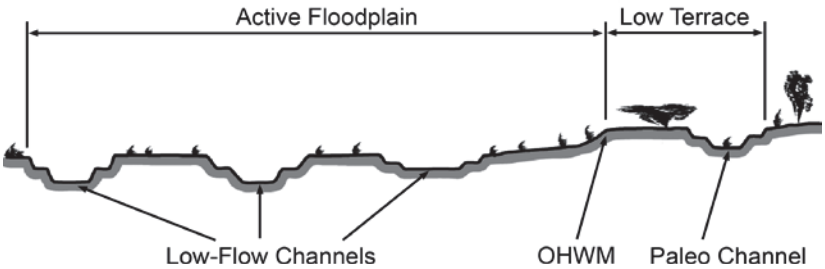
Regnart Creek is a trapezoidal-shaped channel with cement sides and a five-foot wide flat coarse sand and gravel bottom where it flows into Calabazas Creek. The sides of the channel are mostly bare earth above the cement to the top of bank. Regnart Creek is about eight feet higher than Calabazas Creek. A cement apron feeds Regnart Creek into Calabazas Creek, resulting in a scour hole in the Calabazas Creek bed.

**Checklist of resources (if available):**

- ■ Aerial photography
  Dates: 1948-2018
- ■ Topographic maps
- ☐ Geologic maps
- ☐ Vegetation maps
- ■ Soils maps
- ■ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ■ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

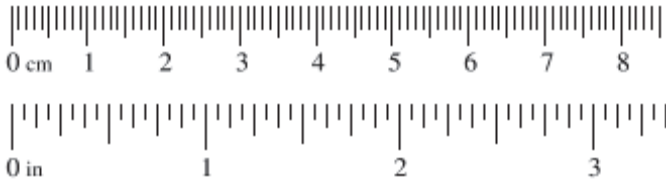



**Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:**

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ■ GPS
   - ■ Digitized on computer
   - ☐ Other:

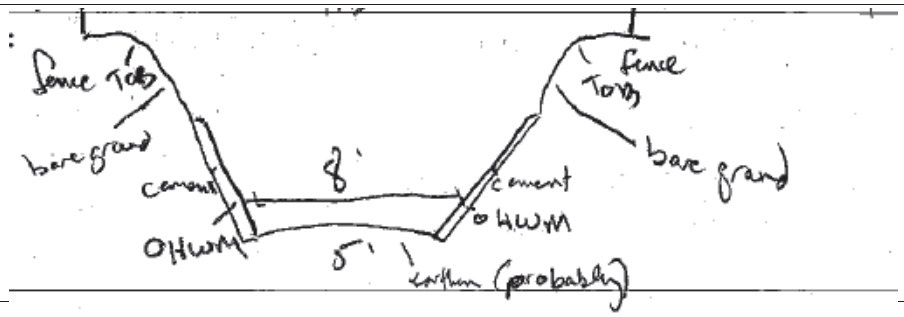
## Wentworth Size Classes

| Inches (in) | | Millimeters (mm) | Wentworth size class | |
|---|---|---|---|---|
| | 10.08 | 256 | Boulder | Gravel |
| | 2.56 | 64 | Cobble | |
| | 0.157 | 4 | Pebble | |
| | 0.079 | 2.00 | Granule | |
| | 0.039 | 1.00 | Very coarse sand | Sand |
| | 0.020 | 0.50 | Coarse sand | |
| 1/2 | 0.0098 | 0.25 | Medium sand | |
| 1/4 | 0.005 | 0.125 | Fine sand | |
| 1/8 | 0.0025 | 0.0625 | Very fine sand | |
| 1/16 | 0.0012 | 0.031 | Coarse silt | Silt |
| 1/32 | 0.00061 | 0.0156 | Medium silt | |
| 1/64 | 0.00031 | 0.0078 | Fine silt | |
| 1/128 | 0.00015 | 0.0039 | Very fine silt | |
| | | | Clay | Mud |



**Project ID: 28204** **Cross section ID: OH3** **Date: 09/18/2018 Time: 12:36 PM**

**Cross section drawing:**




## OHWM

**GPS point:** OH3

**Indicators:**

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☐ Break in bank slope
- ☒ Other: water staining
- ☐ Other: _____

**Comments:**

Water staining along the cement sides of the channel indicate the OHWM. Some algal crust is also present in the bed.

## Floodplain unit:

☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

**GPS point:** OH3

**Characteristics of the floodplain unit:**

Average sediment texture: coarse sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☒ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

**Indicators:**

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☒ Other: algal mat
- ☐ Other: _____
- ☐ Other: _____

**Comments:**

At this section, Regnart Creek is a bare native earth (coarse sand and some gravel) channel bordered by trapezoid-shaped cement channel walls. The bed is approximately 5-feet wide and at the OHWM is approximately 8-feet wide.

# Arid West Ephemeral and Intermittent Streams OHWM Datasheet

**Project:** Calabazas Creek Rehabilitation
**Project Number:** 28204
**Stream:** Calabazas Creek
**Investigator(s):** Elan Alford, Rei Scampavia

**Date:** 09/18/2018 **Time:** 2:49 PM
**Town:** Cupertino **State:** California
**Photo begin file#: 12** **Photo end file#: 12**

Y ■ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ■ Is the site significantly disturbed?

**Location Details:**
Calabazas Creek between Miller Avenue and Bollinger Road

**Projection:** **Datum:** NAD 83
**Coordinates:** 37°18'52.016" N, 122°1'0.000" W

**Potential anthropogenic influences on the channel system:**

Some rip-rap stabilizes the eastern bank. Residential homes line the top of bank to the east and west.

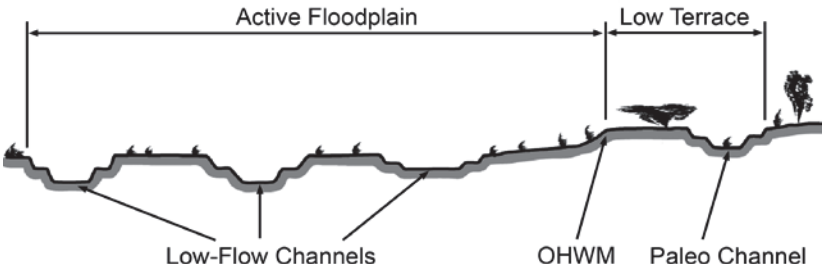
**Brief site description:**

At this section, Regnart Creek is a dry native earth channel with a cobble and gravel substrate (with some sand). The eastern bank is steeply eroded, while the western bank is a gradual slope with leaf litter and some vegetation.

**Checklist of resources (if available):**

- ■ Aerial photography
  Dates: 1948-2018
- ■ Topographic maps
- ☐ Geologic maps
- ☐ Vegetation maps
- ■ Soils maps
- ■ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ■ Global positioning system (GPS)
- ☐ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

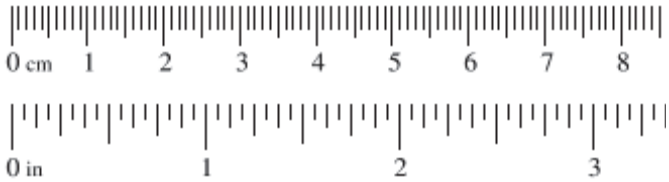



**Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:**

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ■ GPS
   - ■ Digitized on computer
   - ☐ Other:

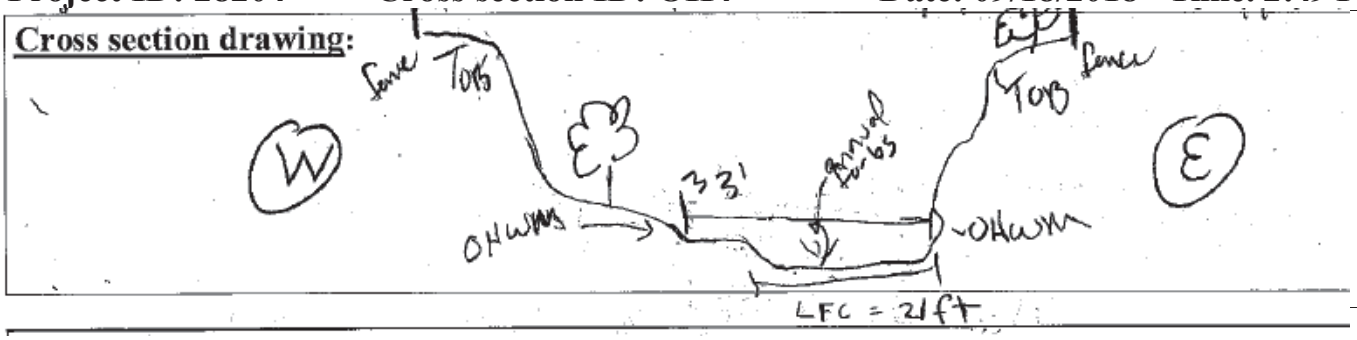
## Wentworth Size Classes

| Inches (in) | | Millimeters (mm) | Wentworth size class | |
|---|---|---|---|---|
| | 10.08 | 256 | Boulder | Gravel |
| | 2.56 | 64 | Cobble | |
| | 0.157 | 4 | Pebble | |
| | 0.079 | 2.00 | Granule | |
| | 0.039 | 1.00 | Very coarse sand | Sand |
| | 0.020 | 0.50 | Coarse sand | |
| 1/2 | 0.0098 | 0.25 | Medium sand | |
| 1/4 | 0.005 | 0.125 | Fine sand | |
| 1/8 | 0.0025 | 0.0625 | Very fine sand | |
| 1/16 | 0.0012 | 0.031 | Coarse silt | Silt |
| 1/32 | 0.00061 | 0.0156 | Medium silt | |
| 1/64 | 0.00031 | 0.0078 | Fine silt | |
| 1/128 | 0.00015 | 0.0039 | Very fine silt | |
| | | | Clay | Mud |



**Project ID: 28204** **Cross section ID: OH4** **Date: 09/18/2018** **Time: 2:49 PM**

**Cross section drawing:**




## OHWM

**GPS point:** OH4

**Indicators:**

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☒ Break in bank slope
- ☒ Other: scour
- ☐ Other: _____

**Comments:**

A break in bank indicates the OHWM to the west, and scour on the east and west banks also indicate the OHWM.

## Floodplain unit:

☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

**GPS point:** OH4

**Characteristics of the floodplain unit:**

Average sediment texture: gravel

Total veg cover: 66 % Tree: 60 % Shrub: 0 % Herb: 6 %

Community successional stage:

- ☐ NA
- ☒ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

**Indicators:**

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☒ Presence of bed and bank
- ☒ Benches
- ☒ Soil development
- ☒ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

**Comments:**

The tree canopy that shades the channel is rooted outside the channel above the OHWM.

# Arid West Ephemeral and Intermittent Streams OHWM Datasheet

**Project:** Calabazas Creek Rehabilitation
**Project Number:** 28204
**Stream:** Calabazas Creek
**Investigator(s):** Elan Alford, Rei Scampavia

**Date:** 09/19/2018 **Time:** 11:20 AM
**Town:** Cupertino **State:** California
**Photo begin file#: 14** **Photo end file#: 18**

Y ■ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ■ Is the site significantly disturbed?

**Location Details:**
Calabazas Creek north of Bollinger Road

**Projection:** **Datum:** NAD 83
**Coordinates:** 37°18'43.492" N, 122°1'11.050" W

**Potential anthropogenic influences on the channel system:**
Residential homes line the top of bank to the east and west. Some broken concrete litters the channel, and a black tarp covers the the eroded west bank. Bollinger Road crosses Calabazas Creek nearby to the south.

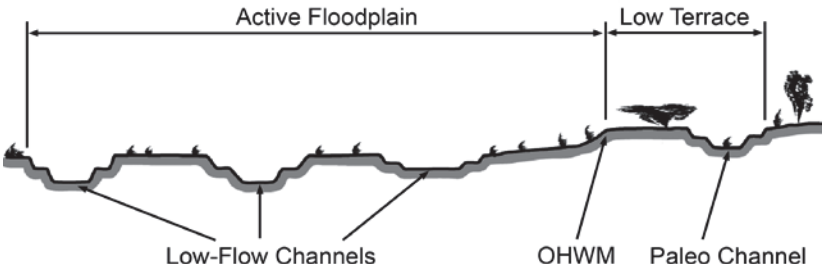
**Brief site description:**
At this section, Calabazas Creek is a dry rocky channel with earthen banks and boulder, cobble, and pebble substrate covered in a dry algal mat. The eastern bank is covered in English ivy, while the western bank sloop is steeply eroded and covered by a black tarp.

**Checklist of resources (if available):**

- ■ Aerial photography
  Dates: 1948-2018
- ■ Topographic maps
- ☐ Geologic maps
- ☐ Vegetation maps
- ■ Soils maps
- ■ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ■ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units




**Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:**

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
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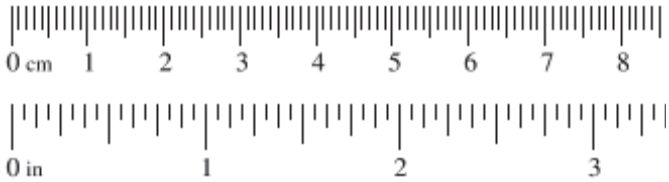
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ■ GPS
   - ■ Digitized on computer
   - ☐ Other:

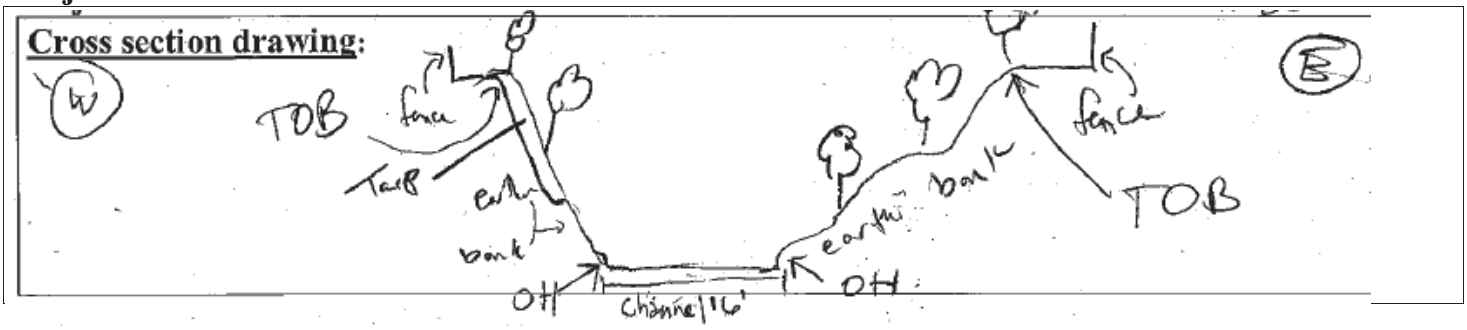
## Wentworth Size Classes

| Inches (in) | | Millimeters (mm) | Wentworth size class | |
|---|---|---|---|---|
| | 10.08 | 256 | Boulder | Gravel |
| | 2.56 | 64 | Cobble | |
| | 0.157 | 4 | Pebble | |
| | 0.079 | 2.00 | Granule | |
| | 0.039 | 1.00 | Very coarse sand | Sand |
| | 0.020 | 0.50 | Coarse sand | |
| 1/2 | 0.0098 | 0.25 | Medium sand | |
| 1/4 | 0.005 | 0.125 | Fine sand | |
| 1/8 | 0.0025 | 0.0625 | Very fine sand | |
| 1/16 | 0.0012 | 0.031 | Coarse silt | Silt |
| 1/32 | 0.00061 | 0.0156 | Medium silt | |
| 1/64 | 0.00031 | 0.0078 | Fine silt | |
| 1/128 | 0.00015 | 0.0039 | Very fine silt | |
| | | | Clay | Mud |



**Project ID: 28204** **Cross section ID: OH5** **Date: 09/19/2018** **Time: 11:20 AM**

**Cross section drawing:**




## OHWM

**GPS point:** OH5

**Indicators:**

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☒ Change in vegetation cover
- ☒ Break in bank slope
- ☒ Other: water mark on channel rocks
- ☒ Other: wrack

**Comments:**

Wrack, consisting of leaf litter, corroborates the OHWM indicated by water marks on boulders in the channel, as well as a break in bank slope on the western bank. Nearby creek sections have riparian bank failures that have been stabilized with tarps or rock rip-rap.

## Floodplain unit:

☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

**GPS point:** OH5

**Characteristics of the floodplain unit:**

Average sediment texture: cobble

Total veg cover: trace % Tree: 0 % Shrub: 0 % Herb: trace %

Community successional stage:

- ☐ NA
- ☒ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

**Indicators:**

- ☐ Mudcracks
- ☐ Ripples
- ☒ Drift and/or debris
- ☒ Presence of bed and bank
- ☐ Benches
- ☒ Soil development
- ☐ Surface relief
- ☒ Other: algal mat
- ☐ Other:
- ☐ Other:

**Comments:**

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Calabazas Creek Rehabilitation Project City/County: Cupertino/Santa Clara Sampling Date: 09/19/2018

Applicant/Owner: Santa Clara Valley Water District State: CA Sampling Point: SP1

Investigator(s): Elan Alford, Rei Scampavia Section, Township, Range: S 21/ T 7S/ R 1W

Landform (hillslope, terrace, etc.): stream fringe Local relief (concave, convex, none): convex Slope (%): 1

Subregion (LRR): LRR C Lat: 37.31398 Long: -122.01708 Datum: NAD 83

Soil Map Unit Name: Urban land-Stevens Creek complex NWI classification: Riverine

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ✓ | No _____ | **Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓ |
| Hydric Soil Present? | Yes _____ | No ✓ | |
| Wetland Hydrology Present? | Yes ✓ | No _____ | |

Remarks:

SP1 is located in one of several patches along Calabazas Creek dominated by Persicaria hydropiperoides below the ordinary high water mark. The gravelly soil bed made it difficult to obtain a soil sample for characterization.

## VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 30' diameter) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. Quercus lobata | 30 | Y | FACU |
| 2. Aesculus californica | 7 | N | NI |
| 3. | | | |
| 4. | | | |
| | 7 | = Total Cover | |
| **Sapling/Shrub Stratum (Plot size: 15' diameter)** | | | |
| 1. none | 0 | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 0 | = Total Cover | |
| **Herb Stratum (Plot size: 5'x5')** | | | |
| 1. Persicaria hydropiperoides | 35 | Y | OBL |
| 2. Chenopodium sp. | 7 | N | FACU |
| 3. Dittrichia graveolens | 7 | N | NI |
| 4. Cyperus eragrostis | 3 | N | FACW |
| 5. Pseudognaphalium luteoalbum | 2 | N | FAC |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| | 54 | = Total Cover | |
| **Woody Vine Stratum (Plot size: 15' diameter)** | | | |
| 1. none | 0 | | |
| 2. | | | |
| | 0 | = Total Cover | |

% Bare Ground in Herb Stratum 26 % Cover of Biotic Crust 20

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | Multiply by: |
|---|---|
| OBL species _____ | x 1 = _____ |
| FACW species _____ | x 2 = _____ |
| FAC species _____ | x 3 = _____ |
| FACU species _____ | x 4 = _____ |
| UPL species _____ | x 5 = _____ |
| Column Totals: _____ (A) | _____ (B) |

Prevalence Index = B/A = _____

**Hydrophytic Vegetation Indicators:**

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** **Yes** ✓ **No** _____

Remarks:

The tree canopy (Quercus lobata and Aesculus californica) are rooted uphill of SP1 on a riparian bank and not in the stream fringe. They were therefore not counted in the dominance test since they are not indicative of site-specific hydrology.

## SOIL

Sampling Point: SP1

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-5 | | | | | | | sand | coarse sand, gravel, some cobble |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

**Indicators for Problematic Hydric Soils[3]:**

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: none

Depth (inches): n/a

**Hydric Soil Present?** **Yes** ___ **No** ✓

Remarks:

High gravel content prohibited excavation past a five inch depth. Within that depth, soil was dry and no redoximorphic features or hydrogen sulfide smell were present at the time of excavation of the exploratory pit.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ✓ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

Surface Water Present? Yes ___ No ✓ Depth (inches): n/a

Water Table Present? Yes ___ No ✓ Depth (inches): n/a

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): n/a

**Wetland Hydrology Present?** **Yes** ✓ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A dried algal mat covered about 20% of the soil surface. At the time of excavation, soil was dry to five inches depth. Similar agal mat is present in other unvegetated areas of the channel.

## Appendix F – Property Access Statement

The Santa Clara Valley Water District owns or has easements along the Calabazas Creek channel. Corps personnel are allowed to enter the channel from the access gate at Creekside Park (south of Miller Avenue) and collect samples during normal business hours, but must notify and be accompanied by District staff to do so.

_____

Alex Hunt
SCVWD Associate Environmental Planner and
authorized representative of Santa Clara Valley Water District

# Appendix E
Cultural Resources Survey Memorandum

Pacific Legacy Historic Preservation
Bay Area Division
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www.pacificlegacy.com

# MEMO

Date: September 26, 2018

To: Carole Foster
Associate Water Resources Specialist
Stream Maintenance Program Unit
Santa Clara Valley water District
5750 Almaden Expressway, San Jose, CA 95118

From: Elena Reese

Subject: Santa Clara Valley Water District Calabazas Creek Rehabilitation Project (PL-3039-01, Task 7)

---

A cultural resources pedestrian inventory survey was conducted in support of the Calabazas Creek Rehabilitation Project (Project) on September 20, 2018. The Project will involve repairs at 11 locations to eroded vertical creek banks, undercut creek banks, and creek bank failures. These activities will take place along Calabazas Creek between Miller Avenue and Bollinger Road in the City of Cupertino, Santa Clara County (*see* Figures 1 and 2). The area spans approximately 3,700 feet in total length, though ground disturbance will be confined to roughly 1,355 feet of creek bank within the wider Project area. No prehistoric or historic period cultural materials were encountered during the pedestrian inventory survey. Based on the results of the survey and an archival and records search requested by the SCVWD, it is our opinion that would be a low likelihood of encountering cultural resources during Project ground disturbing activities. Should the Project result in the inadvertent discovery of cultural resources, however, we recommend that all work in the immediate area stop and that a qualified archaeologist be contacted immediately for assistance.

**Task 7 – The Calabazas Creek Rehabilitation Project**

A non-confidential archival and records search of the California Historical Resources Information System (CHRIS) was conducted by the Northwest Information Center (NWIC) on August 22, 2018. This search indicated that two prior archaeological studies (S-018403 - Cartier, Eckert, and Reddington 1996; S-028028 – Busby 2003) overlapped approximately 20% of the Project area, however no previously recorded archaeological sites, buildings, or structures were noted (NWIC File No. 18-0248). The NWIC reported a "moderate potential" for Native American and historic period archeological resources, and noted that the Caltrans Bridge Inventory lists one historic bridge within or adjacent to the Project area. The bridge has a status designation of "5" or ineligible for listing in the National Register. The bridge is referenced by one prior study (S-0280280 – Busby 2003) as the "old Bollinger Road Bridge," which was recorded outside of the Project area (350 feet upstream of the current bridge) and was not documented during Pacific Legacy's survey. NWIC basemaps depicted two structures on the 1948 USGS Palo Alto topographic quadrangle adjacent to the creek. The creek alignment has

been straightened since the 1948 quadrangle was created, however, and the structures are no longer adjacent to the creek alignment (USGS 1948).

The pedestrian inventory survey of the Project area included all exposed soils in the Calabazas Creek bed and the eroded banks on both the east and west sides of the creek between Miller Avenue and Bollinger Road, though particular attention was paid to the 11 proposed Project activity areas as well as to the creek bed and access ramp at Creekside Park in Cupertino, which will be used to access the work locations. Ground surface visibility was generally excellent (95%), with a few fallen trees and brush in the creek bed. The creek bed was dry at the time of the survey. It was characterized by gravels, sand, and areas of larger rocks, cobbles, and boulders, some of which may have been imported. Along the creek bed, scattered concrete fragments from prior erosion control efforts were noted along with a few water-washed brick fragments, one terra cotta flowerpot sherd, and other recent debris (including concrete pipe fragments, a concrete staircase fragment, and two soccer balls). These objects were likely modern and not *in situ*. No prehistoric or clearly historic period materials were observed.

Visibility on the eroded bank locations ranged from 20 to 100% depending on density of vegetation. Since most of the areas were extensive, sufficient bank soil profiles were visible to assess whether cultural deposits were present. Table 1 provides survey data for the eleven bank repair locations within the Project area (*see* Attachment A for photograph documentation).

**Table 1. Summary of Survey Results by Location**

| Area No. | Side of Creek | Length | Visibility | Vegetation Noted | Soil Description | Cultural Material Present | Comments |
|---|---|---|---|---|---|---|---|
| 1 | East | 60 ft | 100% | Ivy, live oak, seasonal grass | 2.5Y 6/2 light brownish gray sandy clay | None | Riprap partly obscured view. |
| 2 | West | 40 ft | 90-100% | Live oaks, patches of ivy | 2.5Y 6/2 light brownish gray sandy clay | None | Riprap partly obscured view. |
| 3 | East | 54 ft | 90-100% | Live oaks, ivy, poison oak, buckeyes | 2.5Y 6/2 light brownish gray sandy clay | None | |
| 4 | West | 100 ft | 20% on opposite bank | Ivy, oaks, buckeye | 2.5Y 6/1 gray sandy clay on opposite bank | None | Riprap obscured immediate bank view. |
| 5 | East | 100 ft | 90-100% | Eucalyptus, seasonal grasses, oaks, buckeye | 10YR 6/2 light grayish brown sandy clay and gravel | None | |
| 6 | East | 100 ft | 40-100% | Seasonal grasses, poison oak, cactus at top of bank | 10YR 5/2 grayish brown sandy clay over 10YR 6/2 light brownish gray gravelly clay | None | |
| 7 | East | 80 ft | 75% | Ivy, oaks, blackberry, bamboo, seasonal grasses | 2.5Y 6/1 gray sandy clay over dense sandy gravel | None | Tarp over part of collapsed bank |

| Area No. | Side of Creek | Length | Visibility | Vegetation Noted | Soil Description | Cultural Material Present | Comments |
|---|---|---|---|---|---|---|---|
| 8 | East | 100 ft | 20-100% | Ivy, 2 redwoods, tree of heaven, live oaks | 2.5Y 6/1 gray sandy clay over 2.5Y 6/3 light yellowish brown sandy clay | None | |
| 9 | West | 330 ft | 90-100% in failed bank area | Oaks, ivy, palm trees, seasonal grasses | 2.5Y 6/2 light brownish gray sandy clay | None | |
| 10 | East | 260 ft | 100% in creek bed; 20% above on bank | Dense ivy, live oaks | 2.5Y 6/2 light brownish gray sandy clay | None | Work area in creek bed. Concrete above import sand at base of the bank. |
| 11 | West | 130 ft | 20-60% | Seasonal grasses, live oaks, ivy, dill | 10YR 5/2 grayish brown sandy clay | None | |

All exposed soils in the Project area were examined, along with spot-checked areas where ground cover was scuffed aside, and no evidence of cultural constituents was found. Exposed bank soil strata were assessed for signs of cultural deposits. The Project is not expected to reveal buried cultural materials. Prior to initiating ground disturbing activities, however, construction personnel should be alerted to the possibility of encountering buried prehistoric or historic period cultural remains. Personnel should be advised that, upon discovery of buried cultural deposits, work in the immediate vicinity of the find should cease and a qualified archaeologist should be contacted immediately. Once the find has been identified, plans for the treatment, evaluation, and mitigation of impacts to the find will need to be developed if it is found to be eligible for listing in the National or California Register.

Potential cultural materials include prehistoric and historic period artifacts and remains. These may consist of, but are not limited to:

- historic period artifacts, such as glass bottles and fragments, tin cans, nails, ceramic and pottery sherds, and other metal objects;
- historic period features such as privies, wells, cellars, foundations or other structural remains (bricks, concrete, or other building materials);
- flaked-stone artifacts and debitage, consisting of obsidian, basalt, and/or chert;
- groundstone artifacts, such as mortars, pestles, and grinding slabs;
- dark, almost black, soil with a "greasy" texture that may be associated with charcoal, ash, bone, shell, flaked stone, groundstone, and fire-affected rock; and,
- human remains.

If human remains are encountered during construction, work in that area must cease and the Santa Clara County Coroner must be notified immediately. If the remains are determined to be Native American, the Native American Heritage Commission (NAHC) must be notified within 48 hours as required by Public Resources Code 5097. The NAHC will notify the designated Most Likely Descendant, who will in turn provide recommendations for the treatment of the remains within 24 hours.

Sincerely,

**Senior Archaeologist**
Pacific Legacy, Inc.
900 Modoc Street
Berkeley, CA 94707
510.524.3991 ext. 2
reese@pacificlegacy.com

**References**

Busby, Colin I.
2003 Archaeological Resources Assessment, Bollinger Road Bicycle Lane/Bridge Culvert Replacement and Extension, Cities of Cupertino and San Jose, Santa Clara County (letter report). [S-028028]

Cartier, R., L. Eckert, and J. Reddington
1996 Cultural Resource Evaluation of the Urgent Erosion Control Project for the Maintenance Program EIR. For Thomas Reid Associates. [S-018403]

**Attachments**

Attachment A: Photographic Documentation
Attachment B: Figures (provided by SCVWD)

**Attachment A: Pacific Legacy Photographic Documentation**

Client: Santa Clara Valley Water District Prepared by: E. Reese

**Photograph No. 1**
**Direction:** North
**Date:** 9/20/18
**Location:**
Calabazas Creek
**Photographer:**
Elena Reese

**Description:**
(Frame 1637)
Overview of Miller Avenue Bridge from Area 1.

**Photograph No. 2**
**Direction:**
Northeast
**Date:** 9/20/18
**Location:**
Calabazas Creek
**Photographer:**
Elena Reese

**Description:**
(Frame 1636)
Overview of Area 1 showing undercut rip-rap on east bank.

**Attachment A: Pacific Legacy Photographic Documentation**

Client: Santa Clara Valley Water District Prepared by: E. Reese

**Photograph No. 3**
**Direction:** South
**Date:** 9/20/18
**Location:**
Calabazas Creek
**Photographer:**
Elena Reese

**Description:**
(Frame 1638)
Overview of Creekside Park access ramp from the creek bed.

**Photograph No. 4**
**Direction:**
Southwest
**Date:** 9/20/18
**Location:**
Calabazas Creek
**Photographer:**
Elena Reese

**Description:**
(Frame 1639)
Overview of Area 2, west bank erosion at confluence with Regnart Creek.

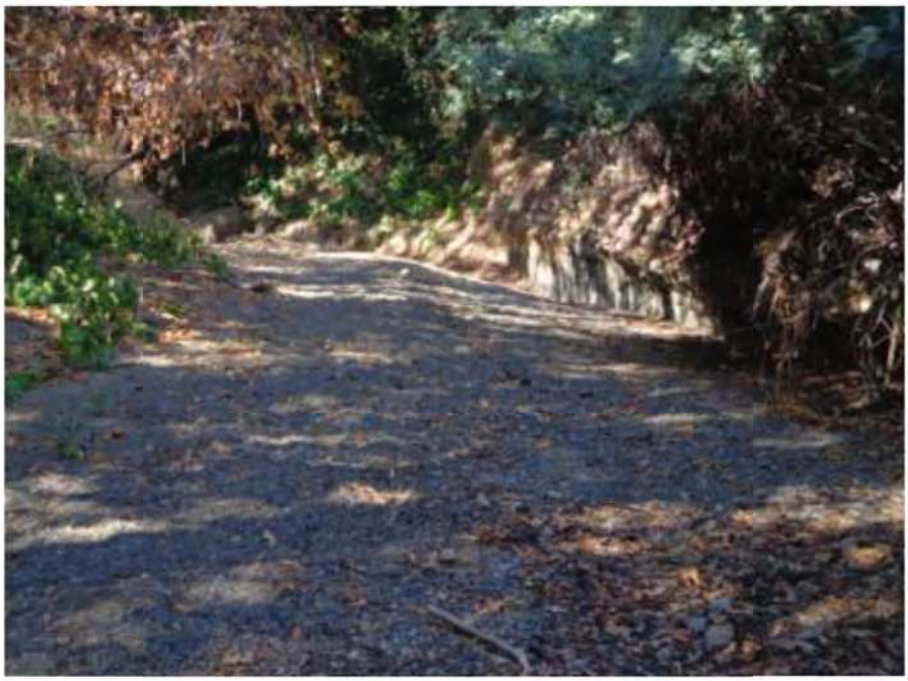
**Attachment A: Pacific Legacy Photographic Documentation**

Client: Santa Clara Valley Water District Prepared by: E. Reese

**Photograph No. 5**
**Direction:**
Southeast
**Date:** 9/20/18
**Location:**
Calabazas Creek
**Photographer:**
Elena Reese

**Description:**
(Frame 1640)
Overview of Area 3, tree root exposure on east bank.

**Photograph No. 6**
**Direction:** West
**Date:** 9/20/18
**Location:**
Calabazas Creek
**Photographer:**
Elena Reese



**Description:**
(Frame 1642)
Overview of Area 4, undercut rip-rap on west bank.

**Attachment A: Pacific Legacy Photographic Documentation**

Client: Santa Clara Valley Water District Prepared by: E. Reese

**Photograph No. 7**
**Direction:**
Southwest
**Date:** 9/20/18
**Location:**
Calabazas Creek
**Photographer:**
Elena Reese

**Description:**
(Frame 1644)
Overview of Area 5, eroding vertical east bank.

**Photograph No. 8**
**Direction:** North
**Date:** 9/20/18
**Location:**
Calabazas Creek
**Photographer:**
Elena Reese

**Description:**
(Frame 1648)
Overview of Area 6, eroding east bank.

**Attachment A: Pacific Legacy Photographic Documentation**

Client: Santa Clara Valley Water District Prepared by: E. Reese

**Photograph No. 9**
**Direction:**
Northeast
**Date:** 9/20/18
**Location:**
Calabazas Creek
**Photographer:**
Elena Reese

**Description:**
(Frame 1650)
Overview of Area 7, east bank failure.

**Photograph No. 10**
**Direction:** South
**Date:** 9/20/18
**Location:**
Calabazas Creek
**Photographer:**
Elena Reese

**Description:**
(Frame 1654)
Overview of Area 8, east bank erosion.

**Attachment A: Pacific Legacy Photographic Documentation**

Client: Santa Clara Valley Water District Prepared by: E. Reese

**Photograph No. 11**
**Direction:**
Southwest
**Date:** 9/20/18
**Location:**
Calabazas Creek
**Photographer:**
Elena Reese

**Description:**
(Frame 1656)
Overview of Area 9, west bank erosion.

**Photograph No. 12**
**Direction:** South
**Date:** 9/20/18
**Location:**
Calabazas Creek
**Photographer:**
Elena Reese

**Description:**
(Frame 1659)
Overview of Area 10, east bank erosion at creek level.

**Attachment A: Pacific Legacy Photographic Documentation**

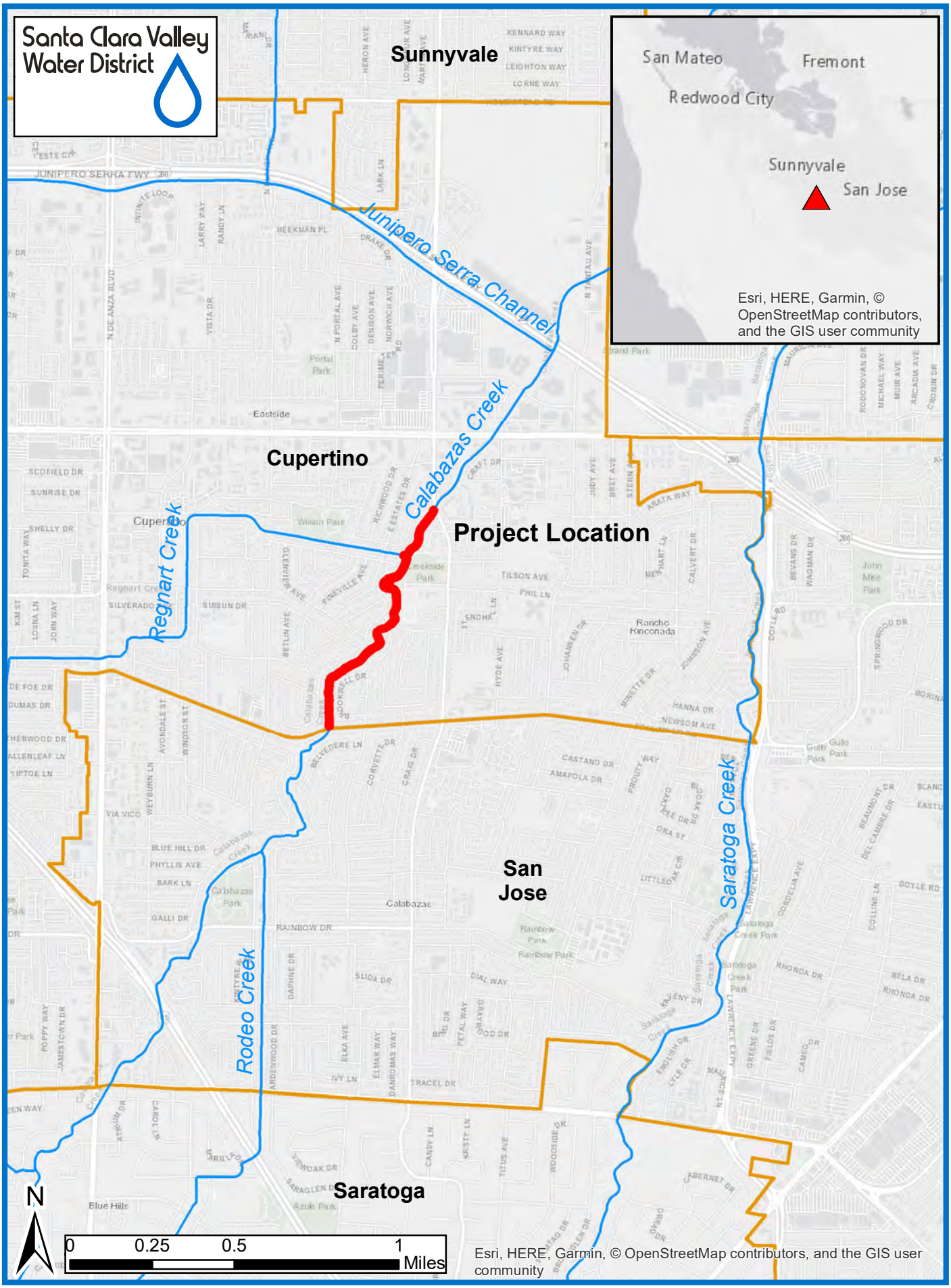
Client: Santa Clara Valley Water District Prepared by: E. Reese

**Photograph No. 13**
**Direction:**
Northwest
**Date:** 9/20/18
**Location:**
Calabazas Creek
**Photographer:**
Elena Reese

**Description:**
(Frame 1662)
Overview of Area 11, west bank erosion.

**Photograph No. 14**
**Direction:** South
**Date:** 9/20/18
**Location:**
Calabazas Creek
**Photographer:**
Elena Reese

**Description:**
(Frame 1663)
Overview of Bollinger Road Bridge.




<W:\Resource Pros\PROJECTS WATERSHED\Calabazas_Miller-Bollinger\GIS> August 27, 2018

**Figure 1**
Regional Context

< W:\Resource Pros\PROJECTS WATERSHED\Calabazas_Miller-Bollinger\GIS> August 27, 2018

**Figure 2**
Project Location

# Appendix F
## Mitigation Monitoring and Reporting Program Summary Table

The following table summarizes the Mitigation Monitoring and Reporting Program (MMRP) which includes the Valley Water's best management practices (BMPs), and mitigation measures identified in the Mitigated Negative Declaration. For each measure, the table provides description of the measure, implementation timing, the entity responsible for implementing the measure, and the entity responsible for monitoring and oversight of the measure.

The MMRP will be adopted by the Valley Water Board of Directors for implementation by the Valley Water, as appropriate. Additionally, implementation of the MMRP will be reported and tracked consistent with CEQA Guidelines Section 15097 and permit reporting conditions.

| **MITIGATION MONITORING AND REPORTING PROGRAM** | | | | | |
|---|---|---|---|---|---|
| **BMP/Mitigation Measure Name** | **BMP/Mitigation Measure ID** | **Description of Measures** | **Implementation Timing** | **Implementation Responsibility** | **Responsibility for Oversight** |
| **AIR QUALITY** | | | | | |
| Use Dust Control Measures | BMP AQ-1 | The following Bay Area Air Quality Management District (BAAQMD) Dust Control Measures will be implemented:<br>1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day;<br>2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered;<br>3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited;<br>4. Water used to wash the various exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, etc.) will not be allowed to enter waterways;<br>5. All vehicle speeds on unpaved roads shall be limited to 15 mph;<br>6. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used;<br>7. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure CCR Title 13, Section 2485), and this requirement shall be | During all phases of construction. | Construction contractor | Valley Water |

| MITIGATION MONITORING AND REPORTING PROGRAM | | | | | |
|---|---|---|---|---|---|
| **BMP/Mitigation Measure Name** | **BMP/Mitigation Measure ID** | **Description of Measures** | **Implementation Timing** | **Implementation Responsibility** | **Responsibility for Oversight** |
| | | clearly communicated to construction workers (such as verbiage in contracts and clear signage at all access points);<br>8. All construction equipment shall be maintained and properly tuned in accordance with manufacturer‘s specifications, and all equipment shall be checked by a certified visible emissions evaluator;<br>9. Correct tire inflation shall be maintained in accordance with manufacturer‘s specifications on wheeled equipment and vehicles to prevent excessive rolling resistance; and,<br>10. 10. Post a publicly visible sign with a telephone number and contact person at the lead agency to address dust complaints; any complaints shall be responded to and take corrective action within 48 hours. In addition, a BAAQMD telephone number with any applicable regulations will be included. | | | |
| Avoid Stockpiling Odorous Materials | BMP AQ-2 | Materials with decaying organic material, or other potentially odorous materials, will be handled in a manner that avoids impacting residential areas and other sensitive receptors, including:<br>1. Avoid stockpiling potentially odorous materials within 1,000 feet of residential areas or other odor sensitive land uses; and<br>2. Odorous stockpiles will be disposed of at an appropriate landfill. | During all phases of construction. | Construction contractor | Valley Water |
| Reduce Construction-related $NO_X$ Emissions | BMP AQ-3 | Nitrogen oxide ($NO_X$) construction mitigation measures recommended by BAAQMD will be implemented, including the following:<br>1. Minimize idling time either by shutting equipment off when not in use or by reducing the time of idling to 5 minutes [required by 13 CCR Sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site. | During all phases of construction. | Construction contractor | Valley Water |

| MITIGATION MONITORING AND REPORTING PROGRAM | | | | | |
|---|---|---|---|---|---|
| **BMP/Mitigation Measure Name** | **BMP/Mitigation Measure ID** | **Description of Measures** | **Implementation Timing** | **Implementation Responsibility** | **Responsibility for Oversight** |
| | | 2. Provide a plan for approval by Valley Water demonstrating that the construction contractors' heavy-duty off-road vehicles (50 horsepower or more) to be used in Project construction, including owned, leased, and subcontractor vehicles, will achieve a Project-wide fleet-average 20 percent $NO_X$ reduction and 45 percent particulate reduction compared to the most recent California Air Resources Board (CARB) fleet average. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available.<br>3. Ensure that emissions from Valley Water's construction contractors' off-road diesel-powered equipment used on the Project site do not exceed 40 percent opacity for more than three minutes in any one hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) will be repaired immediately.<br>4. A visual survey of all in-operation equipment will be made at least weekly. | | | |
| **Biological Resources** | | | | | |
| Remove Temporary Fill | BMP BI-1 | Temporary fill materials, such as for diversion structures or cofferdams, will be removed upon finishing the work or as appropriate. The creek channels and banks will be re-contoured to match pre-construction conditions to the extent possible. Low-flow channels within non-tidal streams will be contoured to facilitate fish passage and will emulate the preconstruction conditions as closely as possible, within the finished channel topography. | During all phases of construction. | Construction contractor | Valley Water |
| Avoid Impacts to Nesting Migratory | BMP BI-2 | Prior to the start of construction activities that begin during the migratory bird nesting period (between January 15 and | During all phases of | Construction | Valley Water |

| MITIGATION MONITORING AND REPORTING PROGRAM | | | | | |
|---|---|---|---|---|---|
| **BMP/Mitigation Measure Name** | **BMP/Mitigation Measure ID** | **Description of Measures** | **Implementation Timing** | **Implementation Responsibility** | **Responsibility for Oversight** |
| Birds | | August 31 of any year), Valley Water shall retain a qualified wildlife biologist to conduct a survey for nesting raptors and migratory birds that could nest along the Project corridor. Surveys will cover all suitable raptor and migratory bird nesting habitat that will be impacted directly or by disturbance, including habitat potentially used by ground-nesting migratory bird species.<br>All migratory bird nesting surveys will be performed no more than 7 days prior to any Project-related activity that could pose the potential to affect migratory birds. With the exception of raptor nests, inactive bird nests may be removed. No birds, nests with eggs, or nests with hatchlings will be disturbed. | construction. | contractor | |
| Avoid Impacts to Nesting Migratory Birds from Pending Construction | BMP BI-3 | Nesting exclusion devices may be installed to prevent potential establishment or occurrence of nests in areas where construction activities would occur. All nesting exclusion devices will be maintained throughout the nesting season or until completion of work in an area makes the devices unnecessary. All exclusion devices will be removed and disposed of when work in the area is complete. | During all phases of construction. | Construction contractor | Valley Water |
| Choose Local Ecotypes of Native Plants and Appropriate Erosion-Control Seed Mixes | BMP BI-4 | Whenever native species are prescribed for installation the following steps will be taken by a qualified biologist or vegetation specialist:<br>1. Evaluate whether the plant species currently grows wild in Santa Clara County; and,<br>2. If so, the qualified biologist or vegetation specialist will determine if any need to be local natives, i.e. grown from propagules collected in the same or adjacent watershed, and as close to the Project site as feasible.<br>Also, consult a qualified biologist or vegetation specialist to determine which seeding option is ecologically appropriate and effective, specifically:<br>1. For areas that are disturbed, an erosion control seed mix may be used consistent with the Valley Water | During Project Design and Site Restoration | Valley Water and the construction contractor | Valley Water |

| MITIGATION MONITORING AND REPORTING PROGRAM | | | | | |
|---|---|---|---|---|---|
| **BMP/Mitigation Measure Name** | **BMP/Mitigation Measure ID** | **Description of Measures** | **Implementation Timing** | **Implementation Responsibility** | **Responsibility for Oversight** |
| | | *Guidelines and Standards for Land Use Near Streams, Design Guide 5, 'Temporary Erosion Control Options*.'<br>2. In areas with remnant native plants, the qualified biologist or vegetation specialist may choose an abiotic application instead, such as an erosion control blanket or seedless hydro-mulch and tackifier to facilitate passive revegetation of local native species. If a gravel has been used to prevent soil compaction, this material may be left in place [if ecologically appropriate] instead of seeding.<br>Seed selection shall be ecologically appropriate as determined by a qualified biologist, per *Guidelines and Standards for Land Use Near Streams, Design Guide 2: Use of Local Native Species*. | | | |
| Restore Riffle/Pool Configuration of Channel Bottom | BMP BI-5 | The channel bottom shall be re-graded at the completion of work and restored to as close to the pre-Project conditions and contours as possible. | During site restoration. | Construction contractor | Valley Water |
| Avoid Animal Entry and Entrapment | BMP BI-6 | All pipes, hoses, or similar structures less than 12 inches diameter will be closed or covered to prevent animal entry. All construction pipes, culverts, or similar structures, greater than 2-inches diameter, stored at a construction site overnight, will be inspected thoroughly for wildlife by a qualified biologist or properly trained construction personnel before the pipe is buried, capped, used, or moved. If inspection indicates presence of sensitive or State- or federally listed species inside stored materials or equipment, work on those materials will cease until a qualified biologist determines the appropriate course of action.<br>To prevent entrapment of animals, all excavations, steep-walled holes or trenches more than 6-inches deep will be secured against animal entry at the close of each day. Any of the following measures may be employed, depending on the size of the hole and method feasibility:<br>1. Hole to be securely covered (no gaps) with plywood, | During all phases of construction. | Construction contractor | Valley Water |

| MITIGATION MONITORING AND REPORTING PROGRAM | | | | | |
|---|---|---|---|---|---|
| **BMP/Mitigation Measure Name** | **BMP/Mitigation Measure ID** | **Description of Measures** | **Implementation Timing** | **Implementation Responsibility** | **Responsibility for Oversight** |
| | | or similar materials, at the close of each working day, or any time the opening will be left unattended for more than one hour; or<br>2. In the absence of covers, the excavation will be provided with escape ramps constructed of earth or untreated wood, sloped no steeper than 2:1, and located no farther than 15 feet apart; or<br>3. In situations where escape ramps are infeasible, the hole or trench will be surrounded by filter fabric fencing or a similar barrier with the bottom edge buried to prevent entry. | | | |
| Minimize Predator-Attraction | BMP BI-7 | Remove trash daily from the worksite to avoid attracting potential predators to the site. | During all phases of construction. | Construction contractor | Valley Water |
| Minimize Spread of Invasive Plants | BMP BI-8 | The spread of invasive nonnative plant species and plant pathogens will be avoided or minimized by implementing the following measures:<br>1. Construction equipment will arrive at the Project clean and free of soil, seed, and plant parts to reduce the likelihood of introducing new weed species.<br>2. Any imported fill material, soil amendments, gravel, etc., required for construction activities that will be placed within the upper 12 inches of the ground surface will be free of vegetation and plant material.<br>3. Certified weed-free imported erosion control materials (or rice straw in upland areas) will be used exclusively. | During all phases of construction. | Construction contractor | Valley Water |
| Environmental Awareness Training | MM-BIO-1 | Prior to the start of construction, a qualified biologist shall conduct an Environmental Awareness Training for all construction workers. The Environmental Awareness Training shall include the following information:<br>1. A review of the Project boundaries; | During all phases of construction. | Valley Water or construction contractor | Valley Water |

| MITIGATION MONITORING AND REPORTING PROGRAM | | | | | |
|---|---|---|---|---|---|
| **BMP/Mitigation Measure Name** | **BMP/Mitigation Measure ID** | **Description of Measures** | **Implementation Timing** | **Implementation Responsibility** | **Responsibility for Oversight** |
| | | 2. Special-status species that may be present, their habitat, and proper identification;<br>3. Mitigation measures and BMPs that must be followed;<br>4. The general provisions and protections afforded by the Project's permit conditions; and<br>5. The proper procedures if a special-status species is encountered within the Project area.<br>An instructional pamphlet shall be included with the Environmental Awareness Training and additional copies will be left for construction personnel that join the Project after the training has been conducted. At the completion of the Environmental Awareness Training the qualified biologist will designate on-site personnel (generally the construction crew manager) who will ensure that new construction members receive and review the pamphlet information. The environmental training designee shall also be the primary point of contact in the event that special-status species are found in the Project area and the presence of the qualified biologist is required. | | | |
| Conduct Surveys for San Francisco Dusky-Footed Woodrat and Protect Nests | MM-BIO-2 | Prior to the start of construction activities, a qualified biologist will conduct preconstruction surveys for woodrat nests. Surveys will take place no more than 48 hours prior to the onset of site preparation and construction activities with the potential to disturb woodrats or their habitat. All nests shall be identified and their locations mapped and flagged to be avoided during construction activities.<br>If woodrat nests are found that could be disturbed by construction activities, a woodrat nest relocation plan will be provided to CDFW for review and approval prior to the start of construction activities. The plan will require that the | During all phases of construction. | Valley Water or the construction contractor | Valley Water |

| MITIGATION MONITORING AND REPORTING PROGRAM | | | | | |
|---|---|---|---|---|---|
| **BMP/Mitigation Measure Name** | **BMP/Mitigation Measure ID** | **Description of Measures** | **Implementation Timing** | **Implementation Responsibility** | **Responsibility for Oversight** |
| | | qualified biologist will install a 5-foot no work buffer around the lodges. If woodrat lodges cannot be avoided by construction activities, the plan will detail methods for a qualified biologist to will dismantle the lodge and relocate the lodge materials (i.e., sticks and logs) to the closest location possible that is outside of the construction work area. | | | |
| Implement Western Red Bat Avoidance Measures and Protect Roosts | MM-BIO-3 | Prior to the start of construction activities, a qualified biologist will conduct preconstruction surveys for western red bats. Surveys will take place no more than 48 hours prior to the onset of site preparation and construction activities with the potential to disturb bats or their habitat and will include close inspection of potential bat roosts, such as trees and any foliage in the Project area. If bat(s) are found roosting, an appropriate buffer will be established as determined by the qualified biologist. Work will not occur within the buffer until the bat(s) are determined to be absent from the area. | During all phases of construction. | Valley Water or the construction contractor | Valley Water |
| Restore and/or Enhance Riparian Habitat | MM-BIO-4 | Valley Water will restore and/or enhance any permanently impacted riparian habitat at a mitigation-to-impact ratio of 3:1 and restore temporarily affected habitat at a minimum impact-to-mitigation ratio of 1.1:1 to ensure no net loss of riparian habitat functions and services (e.g. native canopy and understory cover, habitat for birds and bats, protection of water quality, etc.). Valley Water will develop and implement a Habitat Mitigation and Monitoring Plan (HMMP) for impacts to riparian habitat that details the mitigation actions necessary to ensure the 3:1 and 1.1:1 mitigation ratios are being met and there is no net loss of riparian functions and services. For example, the HMMP may propose removal of invasive species cover (English ivy and giant reed) and planting of native trees and understory at Sites 9 and 10 (including multi-story revegetation plans) to meet the specified mitigation ratios. If appropriate, the HMMP may take into consideration the Project's work activities that result in beneficial effects on riparian habitat (such as the removal | During Project Planning and Site Restoration | Valley Water and the construction contractor | Valley Water |

| MITIGATION MONITORING AND REPORTING PROGRAM | | | | | |
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| **BMP/Mitigation Measure Name** | **BMP/Mitigation Measure ID** | **Description of Measures** | **Implementation Timing** | **Implementation Responsibility** | **Responsibility for Oversight** |
| | | of the existing sewer line and associated abutment at Site 9 and the Project's restoration effort to plant trees or vegetation) may be used to offset the amount of mitigation required under this mitigation measure. In addition, any trees replaced pursuant to the City of Cupertino Protected Trees Ordinance (see Mitigation Measure BIO-5) could be counted towards the riparian mitigation.<br><br>The HMMP will include success criteria as specified by the permitting agencies. The HMMP will also include adaptive management guidelines for actions to be taken if the success criteria are not met. Monitoring will assess progress of the restoration and/or enhancement actions according to the success criteria. If progress is not satisfactory, adaptive management actions (including replanting, nonnative species removal, etc.) could be implemented. The HMMP would be subject to CDFW and RWQCB review and approval and will remain in force until the success criteria are met. | | | |
| Protection and Replacement of Protected Trees | MM-BIO-5 | The Project shall voluntarily comply with the applicable provisions of the City of Cupertino's Protected Trees Ordinance (Cupertino Municipal Code Section 14.18). A tree removal permit shall be obtained for the removal of any "protected tree," and replacement plantings shall be provided as approved by the City. If permitted, as provided in Cupertino Municipal Code Section 14.18.160, an appropriate in-lieu tree replacement fee in the amount specified by Section 14.18.160 may be paid to the City of Cupertino's Tree Fund as compensation for "protected trees" removed by the Project, where sufficient land area is not available on-site for adequate replacement as determined by a Certified Arborist and when approved by the City. The number of trees replaced to comply with the City of Cupertino's Protected Trees Ordinance would be counted towards the amount of required mitigation under MM-BIO-4 if approved by the | During Project Planning and all Phases of Construction | Valley Water and the construction contractor | Valley Water |

| MITIGATION MONITORING AND REPORTING PROGRAM | | | | | |
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| **BMP/Mitigation Measure Name** | **BMP/Mitigation Measure ID** | **Description of Measures** | **Implementation Timing** | **Implementation Responsibility** | **Responsibility for Oversight** |
| | | applicable regulatory agencies.<br><br>In addition, Valley Water or its contractor shall retain a Certified Arborist to oversee construction and ensure the following measures are implemented to prevent harm to protected trees not identified for removal. A Certified Arborist is an individual certified by the International Society of Arboriculture.<br><br>• Adequate measures shall be defined to protect all trees to be preserved. These measures shall include the establishment of a tree protection zone (TPZ) around protected trees to be preserved that could be impacted by Project construction. No disturbance is permitted within the TPZ unless approved by the Certified Arborist. The TPZ shall be located at the dripline of the tree or 10 feet, whichever is greater. If necessary, the TPZ for construction-tolerant species (i.e., coast live oaks) may be reduced to 7 feet.<br><br>• Where feasible, temporary construction fencing shall be installed at the perimeter of TPZs prior to grubbing or grading. Where feasible, the bottom of the fencing should be elevated above the ground surface to allow for wildlife movement. Where feasible, the bottom of the fencing should be elevated above the ground surface to allow for wildlife movement. Fences shall remain until all construction is completed. Fences shall not be relocated or removed without permission from the Certified Arborist.<br><br>• No grading, excavation, or storage of materials shall be permitted within TPZs.<br><br>• Where encroachment cannot be avoided, special construction techniques such as hand digging under roots shall be employed where necessary to minimize root injury. Work within the TPZ shall use | | | |

| MITIGATION MONITORING AND REPORTING PROGRAM | | | | | |
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| **BMP/Mitigation Measure Name** | **BMP/Mitigation Measure ID** | **Description of Measures** | **Implementation Timing** | **Implementation Responsibility** | **Responsibility for Oversight** |
| | | the smallest equipment and operate from outside the TPZ. The Certified Arborist shall be on-site during all operations within the TPZ to monitor the activity.<br>• Any root pruning for trees to be preserved shall receive the prior approval of and be supervised by the Certified Arborist to ensure the long-term health of the tree. Roots shall be cut by manually digging a trench and cutting exposed roots with a sharp saw.<br>• All grading and construction plans shall clearly indicate trees proposed to be removed or otherwise affected by construction. The tree information in the construction plans should indicate the number, size, species, and assigned tree number of all trees that are to be retained/preserved.<br>• The contractor shall meet with the Certified Arborist before beginning work to discuss work procedures and tree protection.<br>• Trees to be preserved may require pruning to provide access and construction clearance. All pruning shall be completed by a State of California Licensed Tree Contractor and under the direction of a Certified Arborist in accordance with the 2002 BMPs for Pruning published by the International Society of Arboriculture, and adhere to the most recent editions of the American National Standard for Tree Care Operations (Section Z133.1) and Pruning (Section A300).<br>• In the unlikely event any protected tree not identified for removal is damaged in a manner that could result in tree mortality (as determined by a Certified Arborist), the damage would be reported to the City of Cupertino and mitigation consistent with the Protected Trees Ordinance would be obtained. | | | |

| MITIGATION MONITORING AND REPORTING PROGRAM | | | | | |
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| **BMP/Mitigation Measure Name** | **BMP/Mitigation Measure ID** | **Description of Measures** | **Implementation Timing** | **Implementation Responsibility** | **Responsibility for Oversight** |
| **Cultural Resources** | | | | | |
| Accidental Discovery of Archaeological Artifacts, Tribal Cultural Resources, or Burial Remains | BMP CU-1 | If historical or unique archaeological artifacts, or tribal cultural resources, are accidentally discovered during construction, work in affected areas will be restricted or stopped until proper protocols are met. Work at the location of the find will halt immediately within 100 feet of the find. A "no work" zone shall be established utilizing appropriate flagging to delineate the boundary of this zone. A Consulting Archaeologist will visit the discovery site as soon as practicable for identification and evaluation pursuant to PRC Section 21083.2 and CCR Section 15126.4. If the archaeologist determines that the artifact is not significant, construction may resume. If the archaeologist determines that the artifact is significant, the archaeologist will determine if the artifact can be avoided and, if so, will detail avoidance procedures. If the artifact cannot be avoided, the archaeologist will develop within 48 hours an Action Plan which will include provisions to minimize impacts and, if required, a Data Recovery Plan for recovery of artifacts in accordance with PRC Section 21083.2 and Section 15126.4 of the CEQA Guidelines. If a tribal cultural resource cannot be avoided, the Action Plan will include notification of the appropriate Native American tribe, and consultation with the tribe regarding acceptable recovery options.<br>If burial finds are accidentally discovered during construction, work in affected areas will be restricted or stopped until proper protocols are met. Upon discovering any burial site as evidenced by human skeletal remains, the County Coroner will be immediately notified, and the field crew supervisor shall take immediate steps to secure and protect such remains from vandalism during periods when work crews are absent. No further excavation or disturbance within 100 feet of the site or any nearby area reasonably suspected to overlie adjacent remains may be made except as authorized by the County Coroner, California Native American Heritage Commission, and/or the County | During all phases of construction | Construction contractor | Valley Water |

| MITIGATION MONITORING AND REPORTING PROGRAM | | | | | |
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| **BMP/Mitigation Measure Name** | **BMP/Mitigation Measure ID** | **Description of Measures** | **Implementation Timing** | **Implementation Responsibility** | **Responsibility for Oversight** |
| | | Coordinator of Indian Affairs. | | | |
| **Hazards and Hazardous Materials** | | | | | |
| Comply with All Pesticide Application Restrictions and Policies | BMP HM-1 | Pesticide products are to be used only after an assessment has been made regarding environmental, economic, and public health aspects of each of the alternatives by the Valley Water Pest Control Advisor (PCA). All pesticide use will be consistent with approved product specifications. Applications will be made by, or under the direct supervision of, State Certified applicators under the direction of, or in a manner approved by the PCA. | During all phases of construction | Construction contractor | Valley Water |
| Comply with All Pesticide Usage Requirements | BMP HM-2 | All projects that propose ongoing use of pesticides will comply with all provisions of Q751D02: Control and Oversight of Pesticide Use, including, but not necessarily limited to the following:<br>1. All pest control methods will be performed only after a written Pest Control Recommendation for use has been prepared by the District's PCA in accordance with requirements of the California Food and Agricultural Code.<br>2. F751D01 – Pest Control Recommendation & Spray Operators Report will be completed for each pesticide application. | During all phases of construction | Construction contractor | Valley Water |
| Comply with Restrictions on Herbicide Use in Aquatic Areas | BMP HM-3 | Consistent with provisions of Q751D02: Control and Oversight of Pesticide Use, only herbicides and surfactants registered for aquatic use will be applied within the banks of channels within 20 feet of any water present.<br>Furthermore, aquatic herbicide use will be limited to June 15 through October 31 with an extension through December 31 or until the first occurrence of local rainfall greater than 0.5 inches is forecasted within a 24-hour period from planned application events according to the National Weather Service. If rain is forecast, then application of aquatic herbicide will be rescheduled. | During all phases of construction | Construction contractor | Valley Water |

| MITIGATION MONITORING AND REPORTING PROGRAM | | | | | |
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| **BMP/Mitigation Measure Name** | **BMP/Mitigation Measure ID** | **Description of Measures** | **Implementation Timing** | **Implementation Responsibility** | **Responsibility for Oversight** |
| Restrict Vehicle and Equipment Cleaning to Appropriate Locations | BMP HM-4 | Vehicles and equipment may be washed only at approved areas. No washing of vehicles or equipment will occur in the Project area. | During all phases of construction | Construction contractor | Valley Water |
| Ensure Proper Vehicle and Equipment Fueling and Maintenance | BMP HM-5 | No fueling or servicing will be done in a waterway or immediate flood plain, unless equipment stationed in these locations is not readily relocated (i.e., pumps, generators).<br>1. For stationary equipment that must be fueled or serviced on site, containment will be provided in such a manner that any accidental spill will not be able to come in direct contact with soil, surface water, or the storm drainage system.<br>2. All fueling or servicing done at the site will provide containment to the degree that any spill will be unable to enter any waterway or damage riparian vegetation.<br>3. All vehicles and equipment will be kept clean. Excessive build-up of oil and grease will be prevented.<br>4. All equipment used in the Bay or flood basin will be inspected for leaks each day prior to initiation of work. Maintenance, repairs, or other necessary actions will be taken to prevent or repair leaks, prior to use.<br>5. If emergency repairs are required in the field, only those repairs necessary to move equipment to a more secure location will be done in a waterway or flood plain. | During all phases of construction | Construction contractor | Valley Water |
| Ensure Proper Hazardous Materials Management | BMP HM-6 | Measures will be implemented to ensure that hazardous materials are properly handled and the quality of water resources is protected by all reasonable means.<br>1. Prior to entering the work site, all field personnel will | During all phases of construction | Construction contractor | Valley Water |

| MITIGATION MONITORING AND REPORTING PROGRAM | | | | | |
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| **BMP/Mitigation Measure Name** | **BMP/Mitigation Measure ID** | **Description of Measures** | **Implementation Timing** | **Implementation Responsibility** | **Responsibility for Oversight** |
| | | know how to respond when toxic materials are discovered.<br>2. Contact of chemicals with precipitation will be minimized by storing chemicals in watertight containers with appropriate secondary containment to prevent any spillage or leakage.<br>3. Petroleum products, chemicals, cement, fuels, lubricants, and non-storm drainage water or water contaminated with the aforementioned materials will not contact soil and not be allowed to enter surface waters or the storm drainage system.<br>4. All toxic materials, including waste disposal containers, will be covered when they are not in use, and located as far away as possible from a direct connection to the storm drainage system or surface water.<br>5. Quantities of toxic materials, such as equipment fuels and lubricants, will be stored with secondary containment that is capable of containing 110% of the primary container(s).<br>6. The discharge of any hazardous or non-hazardous waste as defined in Division 2, Subdivision 1, Chapter 2 of the California Code of Regulations will be conducted in accordance with applicable State and federal regulations.<br>7. In the event of any hazardous material emergencies or spills, personnel will call the Chemical Emergencies/Spills Hotline at 1-800-510-5151. | | | |
| Utilize Spill Prevention Measures | BMP HM-7 | Prevent the accidental release of chemicals, fuels, lubricants, and non-storm drainage water following these measures:<br>1. Field personnel will be appropriately trained in spill prevention, hazardous material control, and clean up of accidental spills;<br>2. Equipment and materials for cleanup of spills will be | During all phases of construction | Construction contractor | Valley Water |

| MITIGATION MONITORING AND REPORTING PROGRAM | | | | | |
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| **BMP/Mitigation Measure Name** | **BMP/Mitigation Measure ID** | **Description of Measures** | **Implementation Timing** | **Implementation Responsibility** | **Responsibility for Oversight** |
| | | available on site, and spills and leaks will be cleaned up immediately and disposed of according to applicable regulatory requirements;<br>3. Field personnel will ensure that hazardous materials are properly handled and natural resources are protected by all reasonable means;<br>4. Spill prevention kits will always be in close proximity when using hazardous materials (e.g., at crew trucks and other logical locations), and all field personnel will be advised of these locations; and,<br>5. The work site will be routinely inspected to verify that spill prevention and response measures are properly implemented and maintained. | | | |
| Incorporate Fire Prevention Measures | BMP HM-8 | 1. All earthmoving and portable equipment with internal combustion engines will be equipped with spark arrestors.<br>2. During the high fire danger period (April 1–December 1), work crews will have appropriate fire suppression equipment available at the work site.<br>3. An extinguisher shall be available at the project site at all times when welding or other repair activities that can generate sparks (such as metal grinding) is occurring.<br>4. Smoking shall be prohibited except in designated staging areas and at least 20 feet from any combustible chemicals or vegetation. | During all phases of construction | Construction contractor | Valley Water |
| **Hydrology and Water Quality** | | | | | |
| Limit Impact of Pump and Generator Operation and Maintenance | BMP WQ-1 | Pumps and generators will be maintained and operated in a manner that minimizes impacts to water quality and aquatic species.<br>1. Pumps and generators will be maintained according to manufacturers' specifications to regulate flows to | During all phases of construction | Construction contractor | Valley Water |

| MITIGATION MONITORING AND REPORTING PROGRAM | | | | | |
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| **BMP/Mitigation Measure Name** | **BMP/Mitigation Measure ID** | **Description of Measures** | **Implementation Timing** | **Implementation Responsibility** | **Responsibility for Oversight** |
| | | prevent dry-back or washout conditions.<br>2. Pumps will be operated and monitored to prevent low water conditions, which could pump muddy bottom water, or high-water conditions, which creates ponding.<br>3. Pump intakes will be screened to prevent uptake of fish and other vertebrates. Pumps will be screened according to National Marine Fisheries Service (NMFS) criteria.<br>4. Sufficient back-up pumps and generators will be on site to replace defective or damaged pumps and generators. | | | |
| Limit Impacts from Staging and Stockpiling Materials | BMP WQ-2 | 1. To protect on site vegetation and water quality, staging areas should occur on access roads, surface streets, or other disturbed areas that are already compacted and only support ruderal vegetation. Similarly, all equipment and materials (e.g., road rock and spoils) will be contained within the existing access roads or other pre-determined staging areas.<br>2. Building materials and other Project-related materials, including chemicals and sediment, will not be stockpiled or stored where they could spill into water bodies.<br>3. No runoff from the staging areas may be allowed to enter water ways without being subjected to adequate filtration (e.g., vegetated buffer, swale, hay wattles or bales, silt screens).<br>4. The discharge of decant water to water ways from any on site temporary sediment stockpile or storage areas is prohibited.<br>5. During the wet season, no stockpiled soils will remain exposed, unless surrounded by properly installed and maintained silt fencing or other means of erosion control. During the dry season; exposed, | During all phases of construction | Construction contractor | Valley Water |

| MITIGATION MONITORING AND REPORTING PROGRAM | | | | | |
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| **BMP/Mitigation Measure Name** | **BMP/Mitigation Measure ID** | **Description of Measures** | **Implementation Timing** | **Implementation Responsibility** | **Responsibility for Oversight** |
| | | dry stockpiles will be watered, enclosed, covered, or sprayed with non-toxic soil stabilizers. | | | |
| Use Seeding for Erosion Control, Weed Suppression, and Site Improvement | BMP WQ-3 | Disturbed areas shall be seeded with native seed as soon as is appropriate after activities are complete. An erosion control seed mix will be applied to exposed soils down to the ordinary high-water mark (OHWM) of the flood basin and the mean high higher tide line on the Bay side of the work area.<br>The seed mix should consist of California native grasses, (for example Hordeum brachyantherum; Elymus glaucus; and annual Vulpia microstachyes) or annual, sterile hybrid seed mix (e.g., Regreen™, a wheat x wheatgrass hybrid). | During site restoration | Construction contractor | Valley Water |
| Maintain Clean Conditions at Work Sites | BMP WQ-4 | The work site, areas adjacent to the work site, and access roads will be maintained in an orderly condition, free and clear from debris and discarded materials on a daily basis. Personnel will not sweep, grade, or flush surplus materials, rubbish, debris, or dust into storm drains or waterways.<br>Materials or equipment left on the site overnight will be stored as inconspicuously as possible and will be neatly arranged. Any materials and equipment left on the site overnight will be stored to avoid erosion, leaks, or other potential impacts to water quality<br>Upon completion of work, all building materials, debris, unused materials, concrete forms, and other construction-related materials will be removed from the work site. | During all phases of construction | Construction contractor | Valley Water |
| Manage Drilling Materials | BMP WQ-5 | All materials or waters generated during drilling will be safely handled, properly managed, and disposed of according to all applicable federal, State, and local statutes regulating such. In no case will these materials and/or waters be allowed to enter, or potentially enter waterways. Such materials/waters must not be allowed to move off the property where the work is being completed. | During bank rehabilitation (sheet pile wall installation) | Construction contractor | Valley Water |
| Protect Groundwater from Contaminates via Drilling | BMP WQ-6 | Any substances or materials that may degrade groundwater quality will not be allowed to enter any boring. Lubricants used on drill bits, drill pipe, or tremie pipe will not be comprised of oily or greasy substances or other materials | During bank rehabilitation (sheet pile wall installation) | Construction contractor | Valley Water |

| MITIGATION MONITORING AND REPORTING PROGRAM | | | | | |
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| **BMP/Mitigation Measure Name** | **BMP/Mitigation Measure ID** | **Description of Measures** | **Implementation Timing** | **Implementation Responsibility** | **Responsibility for Oversight** |
| | | that may degrade groundwater quality.<br>Well openings or entrances will be sealed or secured in such a way as to prevent the introduction of contaminants. | | | |
| Prevent Water Pollution | BMP WQ-7 | Oily, greasy, or sediment laden substances or other material that originate from the Project operations and may degrade the quality of surface water or adversely affect aquatic life, fish, or wildlife will not be allowed to enter, or be placed where they may later enter, any waterway.<br>The Project will not increase the turbidity of any watercourse flowing past the construction site by taking all necessary precautions to limit the increase in turbidity as follows:<br>1. where natural turbidity is between 0 and 50 Nephelometric Turbidity Units (NTU), increases will not exceed 5 percent;<br>2. where natural turbidity is greater than 50 NTU, increases will not exceed 10 percent;<br>3. where the receiving water body is a dry creek bed or storm drain, waters in excess of 50 NTU will not be discharged from the project.<br>Water turbidity changes will be monitored. The discharge water measurements will be made at the point where the discharge water exits the water control system for tidal sites and 100 feet downstream of the discharge point for non-tidal sites. Natural watercourse turbidity measurements will be made in the receiving water 100 feet upstream of the discharge site. Natural watercourse turbidity measurements will be made prior to initiation of project discharges, preferably at least 2 days prior to commencement of operations. | During all phases of construction | Construction contractor | Valley Water |
| Prevent Stormwater Pollution | BMP WQ-8 | To prevent stormwater pollution, the applicable measures from the following list will be implemented:<br>1. Soils exposed due to Project activities will be seeded and stabilized using hydroseeding, straw placement, mulching, and/or erosion control fabric. These measures will be implemented such that the site is | During all phases of construction | Construction contractor | Valley Water |

| MITIGATION MONITORING AND REPORTING PROGRAM | | | | | |
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| **BMP/Mitigation Measure Name** | **BMP/Mitigation Measure ID** | **Description of Measures** | **Implementation Timing** | **Implementation Responsibility** | **Responsibility for Oversight** |
| | | stabilized and water quality protected prior to significant rainfall. In creeks, the channel bed and areas below the OHWM are exempt from this BMP.<br>2. The preference for erosion control fabrics will be to consist of natural fibers; however, steeper slopes and areas that are highly erodible may require more structured erosion control methods. No non-porous fabric will be used as part of a permanent erosion control approach. Plastic sheeting may be used to temporarily protect a slope from runoff, but only if there are no indications that special-status species would be impacted by the application.<br>3. Erosion control measures will be installed according to manufacturer's specifications.<br>4. To prevent stormwater pollution, the appropriate measures from, but not limited to, the following list will be implemented:<br>• Silt Fences<br>• Straw Bale Barriers<br>• Brush or Rock Filters<br>• Storm Drain Inlet Protection<br>• Sediment Traps or Sediment Basins<br>• Erosion Control Blankets and/or Mats<br>• Soil Stabilization (i.e. tackified straw with seed, jute or geotextile blankets, etc.)<br>• Straw mulch.<br>5. All temporary construction-related erosion control methods shall be removed at the completion of the project (e.g. silt fences).<br>6. Surface barrier applications installed as a method of animal conflict management, such as chain link fencing, woven geotextiles, and other similar materials, will be installed no longer than 300 feet, with at least an equal amount of open area prior to | | | |

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| **BMP/Mitigation Measure Name** | **BMP/Mitigation Measure ID** | **Description of Measures** | **Implementation Timing** | **Implementation Responsibility** | **Responsibility for Oversight** |
| | | another linear installation. | | | |
| Manage Sanitary and Septic Waste | BMP WQ-9 | Temporary sanitary facilities will be located in compliance with California Division of Occupational Safety and Health (Cal/OSHA) regulation 8 CCR 1526. All temporary sanitary facilities will be located where overflow or spillage will not enter a watercourse directly (overbank) or indirectly (through a storm drain). | During all phases of construction | Construction contractor | Valley Water |
| **Noise and Vibration** | | | | | |
| Provide Advance Notification of Construction Schedule and 24-hour Hotline to Residents | MM-NV-1 | Valley Water will provide advance written notification of the proposed construction activities to all adjacent residences and posted at Creekside Park at least 30 days prior to the start of construction. Notification shall include a brief overview of the Project and its purpose, as well as the proposed construction activities and schedule. It shall also include the name and contact information of a Valley Water representative responsible for ensuring that reasonable measures are implemented to address the problem (the construction noise disturbance coordinator; see Mitigation Measure NV-3). | At least 30 days prior to the start of construction | Valley Water | Valley Water |
| Implement Work Site Noise Control Measures | MM-NV-2 | To reduce noise impacts, Valley Water will require all contractors to adhere to the following measures. Valley Water will be responsible for ensuring implementation.<br>• All construction equipment will be equipped with manufacturer's standard noise control devices or with equally effective replacement devices consistent with manufacturer specifications.<br>• Stationary noise-generating equipment will be located as far as possible from sensitive receptors, and, if feasible, will be shielded by placement of other equipment or construction materials storage.<br>• Impact tools (e.g., jackhammers) will be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from | During all phases of construction | Construction contractor | Valley Water |

| MITIGATION MONITORING AND REPORTING PROGRAM | | | | | |
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| **BMP/Mitigation Measure Name** | **BMP/Mitigation Measure ID** | **Description of Measures** | **Implementation Timing** | **Implementation Responsibility** | **Responsibility for Oversight** |
| | | pneumatically powered tools. Where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust will be used; this muffler can lower noise levels from the exhaust. External jackets on the tools themselves will be used where feasible. Quieter procedures, such as use of drills rather than impact tools, will be used whenever feasible. | | | |
| Designate Noise Disturbance Coordinator to Address Resident Concerns | MM-NV-3 | Valley Water will designate a representative to act as construction noise disturbance coordinator, responsible for resolving construction noise concerns. The disturbance coordinator's name and contact information will be included in the preconstruction notices sent to adjacent residents (see Mitigation Measure NV-1). They will be available during all construction hours to monitor and respond to concerns. In the event a noise complaint is received, she or he will be responsible for determining the cause of the complaint and ensuring that all reasonable measures are implemented to address the problem. | During all phases of construction | Valley Water | Valley Water |
| Install Temporary Noise Barriers | MM-NV-4 | Valley Water or its contractors will be responsible for monitoring noise from construction activities to ensure that noise at the nearest property line does not exceed 80 dBA, consistent with the City of Cupertino Noise Ordinance. If noise monitoring determines that the 80-dBA threshold is exceeded at any adjacent property, Valley Water will install temporary noise barriers, where feasible, to reduce noise levels below the construction noise standard. Work responsible for the disturbance will be suspended or modified until barriers have been installed. Valley Water will include a construction bid item to provide noise barriers on-site and install noise barriers immediately in response to noise concerns. Following are the relevant specifications.<br>• The barrier will be 10 feet tall. Barriers will surround the work area to block the line of sight for all diesel-powered equipment on the ground, as viewed from | During all phases of construction | Construction contractor | Valley Water |

| MITIGATION MONITORING AND REPORTING PROGRAM | | | | | |
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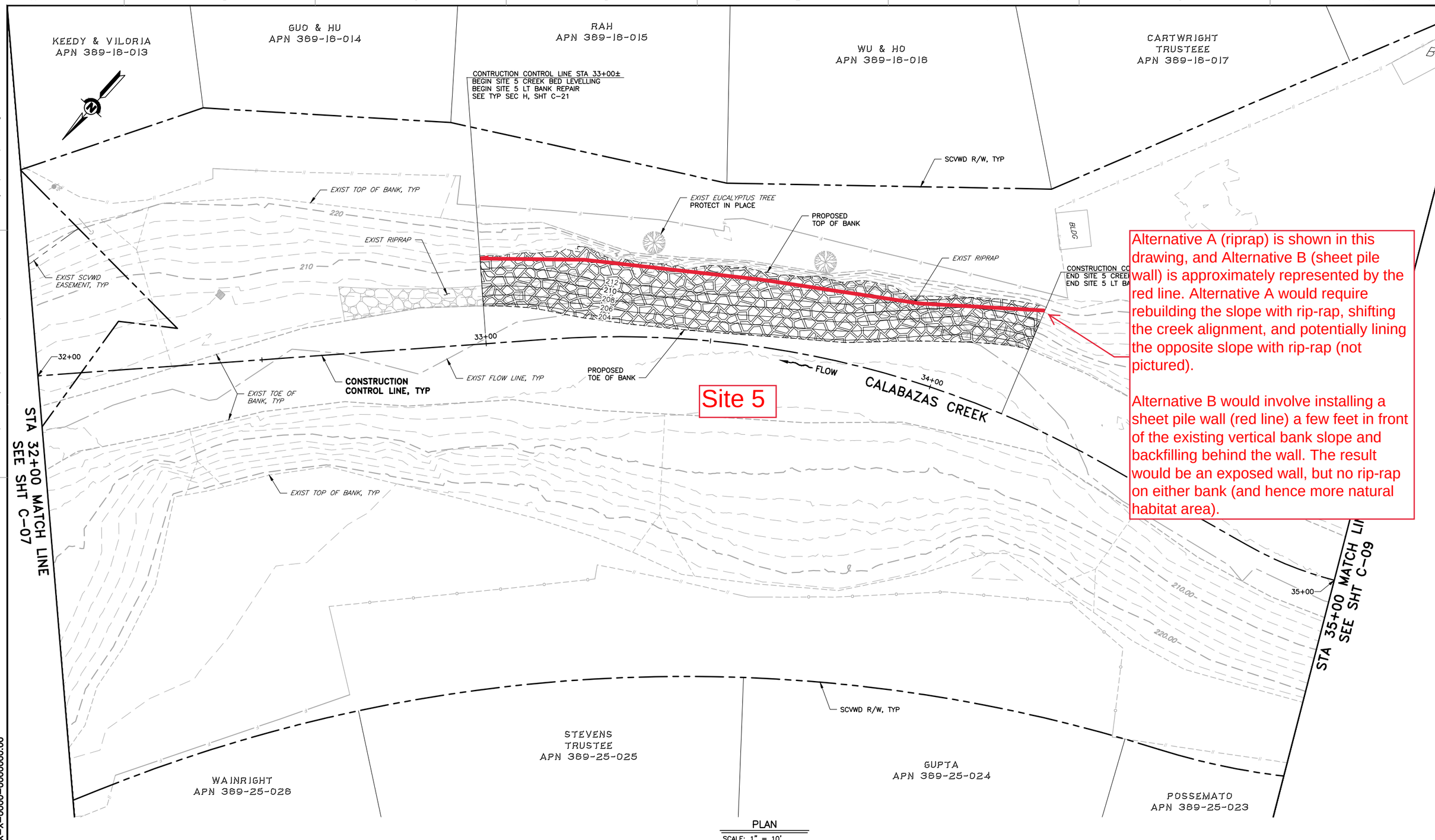
| **BMP/Mitigation Measure Name** | **BMP/Mitigation Measure ID** | **Description of Measures** | **Implementation Timing** | **Implementation Responsibility** | **Responsibility for Oversight** |
| | | any private residence or any building.<br>• The barrier will be constructed of heavyweight plywood (at least 5/8-inch-thick) or other material providing a Sound Transmission Classification of at least 25 dBA. (As above, note that 5/8 inch is sufficiently thick to provide optimal noise buffering; increasing the thickness of the barrier above 5/8 inch would not provide a noticeable improvement in noise reduction.)<br>• The barrier will be constructed with no gaps or holes that would allow noise to transmit through the barrier.<br>• To minimize reflection of noise toward workers at the construction site, the surface of the barrier facing the workers will be covered with sound-absorbing material that meets a Noise Reduction Coefficient of at least 0.70. | | | |
| **Traffic and Transportation** | | | | | |
| Incorporate Public Safety Measures | BMP TR-1 | Fences, barriers, lights, flagging, guards, and signs will be installed as determined appropriate by the public agency having jurisdiction, to give adequate warning to the public of the construction and of any dangerous condition to be encountered as a result thereof. | During all phases of construction | Construction contractor | Valley Water |

# Appendix G

## Hydrologic Data to Support Selection of Bank Repair Methods

**Site 5.** Comparison of Alterative A (red) and Alternative B (yellow) at Site 5. Project elements depicted below are rough estimates.




Alternative A (riprap) is shown in this drawing, and Alternative B (sheet pile wall) is approximately represented by the red line. Alternative A would require rebuilding the slope with rip-rap, shifting the creek alignment, and potentially lining the opposite slope with rip-rap (not pictured).

Alternative B would involve installing a sheet pile wall (red line) a few feet in front of the existing vertical bank slope and backfilling behind the wall. The result would be an exposed wall, but no rip-rap on either bank (and hence more natural habitat area).

PLAN
SCALE: 1" = 10'

| REV | DESCRIPTION | DATE | APPR |
|---|---|---|---|
| | 60% PRELIMINARY 2019-11-13 | | |

REFERENCE INFORMATION AND NOTES

1. NOT ALL TREES SHOWN. ONLY TREES NEAR PROPOSED WORK ARE SHOWN AND ARE FOR INFORMATIONAL PURPOSE ONLY. SEE SHEET C-16 FOR TREE REMOVAL TABLES.

DATE NOV 2019
DESIGN J. LO
DRAWN J. CORDOVA
CHECKED R. NARSIM

ENGINEERING CERTIFICATION
PROJECT ENGINEER DATE

SANTA CLARA VALLEY WATER DISTRICT
Valley Water

PROJECT NAME AND SHEET DESCRIPTION:
# CALABAZAS CREEK REHABILITATION PROJECT
PLAN
STA 32+00 TO STA 35+00

SCALE AS SHOWN
VERIFY SCALES 0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

PROJECT NUMBER 62084001
SHEET CODE: C-08
SHEET NUMBER: XX OF XXX

DOCUMENT NUMBER: XXXX-X-0000-0000000.00

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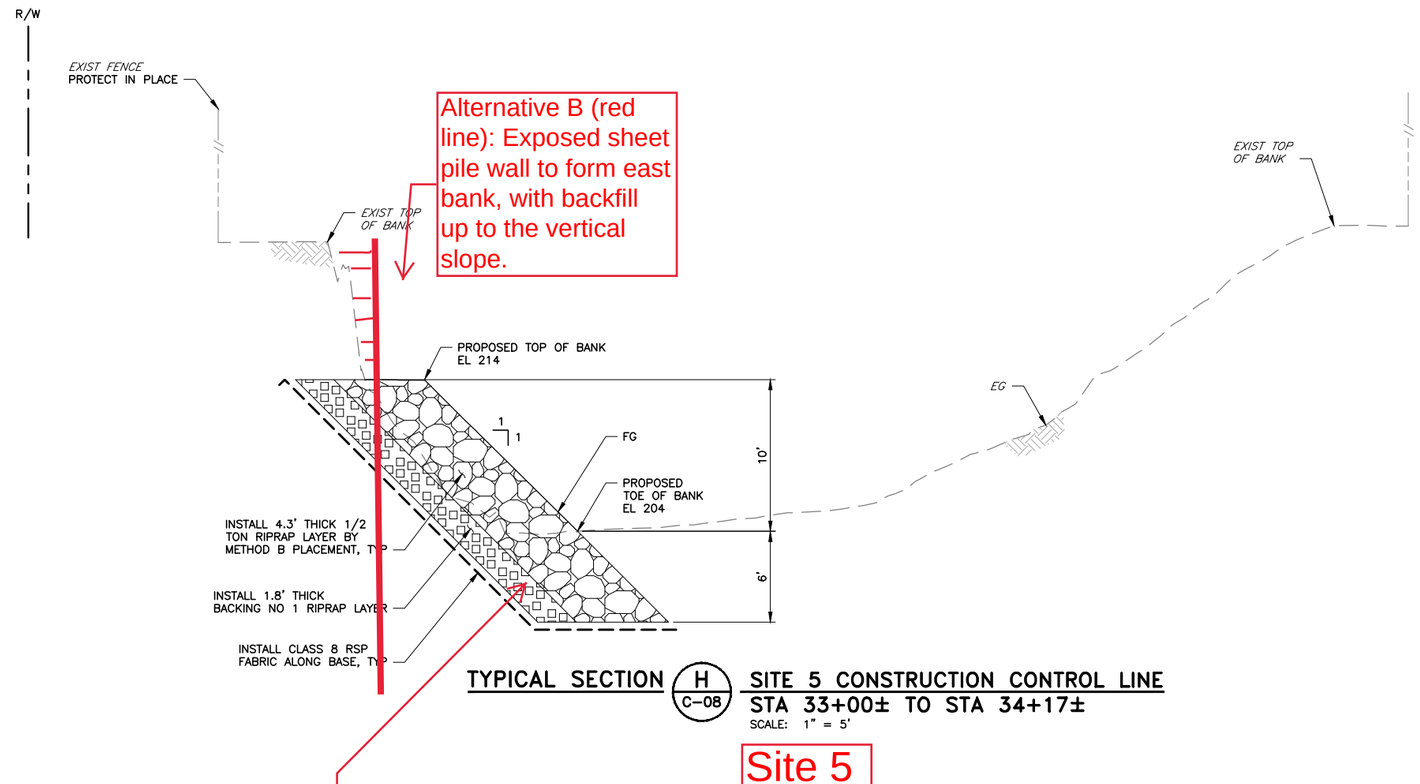


Alternative B (red line): Exposed sheet pile wall to form east bank, with backfill up to the vertical slope.

Alternative A: Install riprap along the bank. Due to encroachment in the channel, the channel centerline would shift towards the opposite bank, potentially requiring re-grading or armoring.

TYPICAL SECTION (H / C-08) SITE 5 CONSTRUCTION CONTROL LINE
STA 33+00± TO STA 34+17±
SCALE: 1" = 5'

Site 5

NOTES:

1. ALL FILLS SHALL BE CONSTRUCTED IN 6" TO 8" LIFTS AND COMPACTED TO A MINIMUM 95% RELATIVE COMPACTION. SLOPES TO RECEIVE FILLS SHALL BE STRIPPED AND BENCHED PRIOR TO RECEIVING FILL, MAXIMUM HEIGHT IS 2' HIGH AT 1H:1V.
2. ALL TREES WITHIN THE PROJECT LIMITS ARE TO REMAIN, EXCEPT INDICATED ON SITE PLAN.

LEGEND:

- 1% FLOOD ELEVATION
- NEW GROUNDWORK CUTLINE
- NEW SURFACE
- GEOTEXTILE FABRIC
- RIPRAP
- NEW FILL
- BACKING NO. 1

| REV | DESCRIPTION | DATE | APPR | REFERENCE INFORMATION AND NOTES | DATE NOV 2019 | ENGINEERING CERTIFICATION | SANTA CLARA VALLEY WATER DISTRICT | PROJECT NAME AND SHEET DESCRIPTION: | SCALE AS SHOWN | PROJECT NUMBER 62084001 |
|---|---|---|---|---|---|---|---|---|---|---|
| | 60% PRELIMINARY 2019-11-13 | | | | DESIGN J. LO | | Valley Water | CALABAZAS CREEK REHABILITATION PROJECT | VERIFY SCALES 0 1" BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY | SHEET CODE: C-21 |
| | | | | | DRAWN J. FORD | | | TYPICAL SECTIONS | | SHEET NUMBER: XX OF XXX |
| | | | | | CHECKED R. NARSIM | PROJECT ENGINEER DATE | | | | |

DOCUMENT NUMBER: XXXX-X-0000-0000000.00

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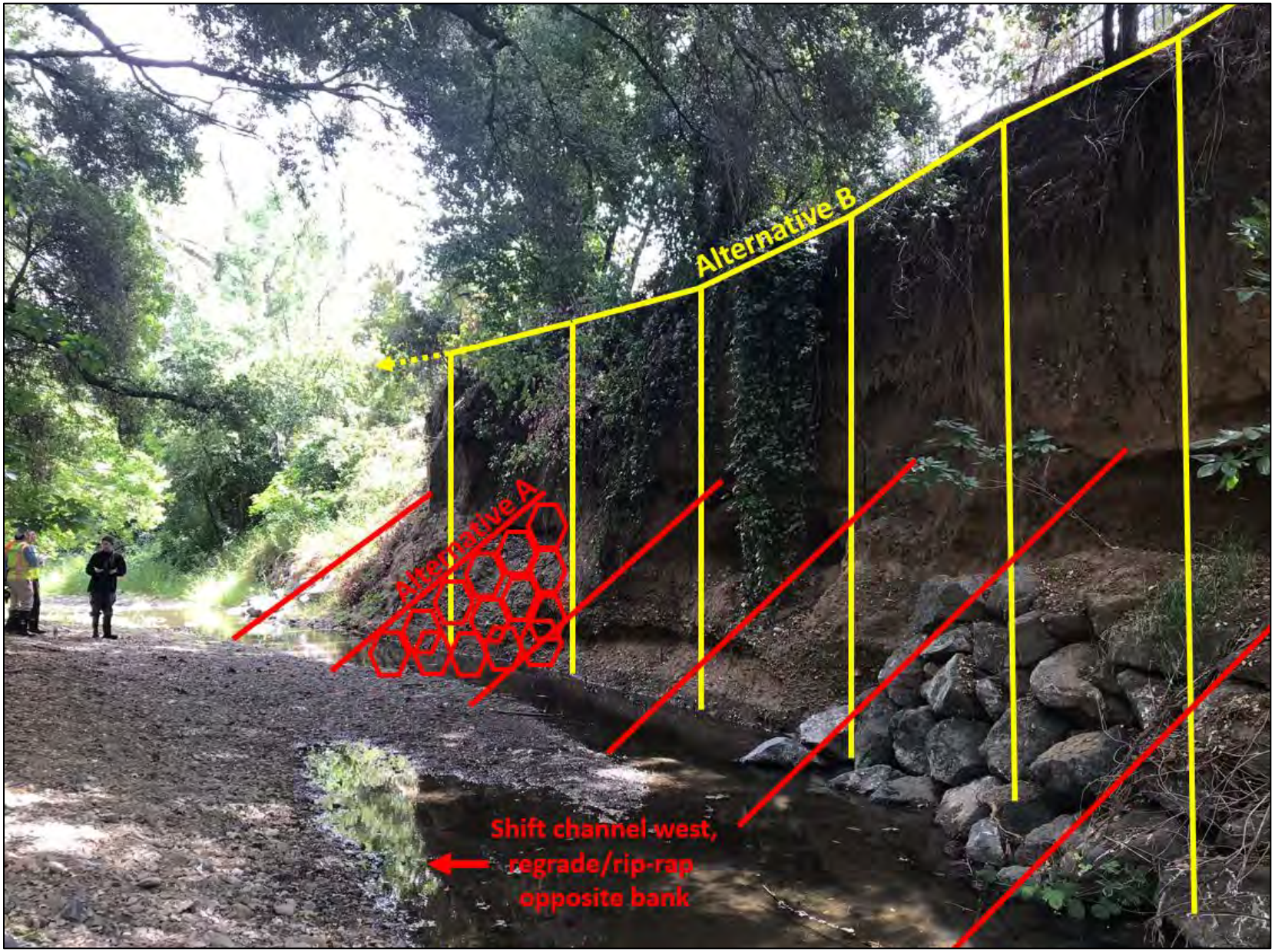
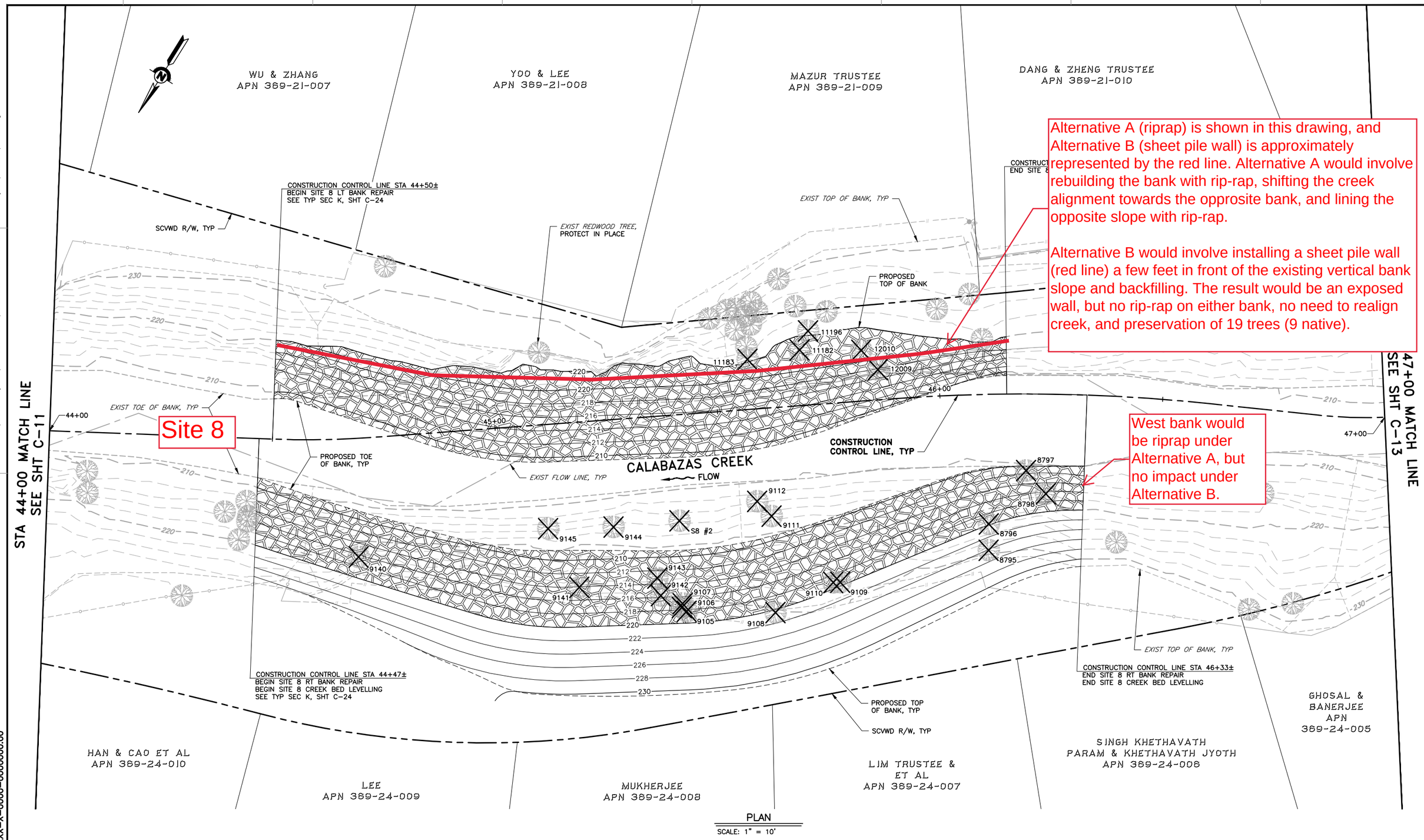
FILENAME: K:\Active Projects\MP-62084001\Calabazas Creek Rehabilitation Project\SHEETS\C-21.dwg

**Site 8.** Comparison of Alterative A (red) and Alternative B (yellow) at Site 8. Project elements depicted below are rough estimates. Modifications to the west bank under Alternative A are not depicted. Project elements depicted below are rough estimates.






Alternative A (riprap) is shown in this drawing, and Alternative B (sheet pile wall) is approximately represented by the red line. Alternative A would involve rebuilding the bank with rip-rap, shifting the creek alignment towards the opposite bank, and lining the opposite slope with rip-rap.

Alternative B would involve installing a sheet pile wall (red line) a few feet in front of the existing vertical bank slope and backfilling. The result would be an exposed wall, but no rip-rap on either bank, no need to realign creek, and preservation of 19 trees (9 native).

West bank would be riprap under Alternative A, but no impact under Alternative B.

PLAN
SCALE: 1" = 10'

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DOCUMENT NUMBER: XXXX-X-0000-0000000.00

| REV | DESCRIPTION | DATE | APPR |
|---|---|---|---|
| | 60% PRELIMINARY 2019-11-13 | | |

REFERENCE INFORMATION AND NOTES

1. NOT ALL TREES SHOWN. ONLY TREES NEAR PROPOSED WORK ARE SHOWN AND ARE FOR INFORMATIONAL PURPOSE ONLY. SEE SHEET C-16 FOR TREE REMOVAL TABLES.

| DATE | ENGINEERING CERTIFICATION |
|---|---|
| NOV 2019 | |
| DESIGN J. LO | |
| DRAWN J. FORD | |
| CHECKED R. NARSIM | PROJECT ENGINEER DATE |

SANTA CLARA VALLEY WATER DISTRICT

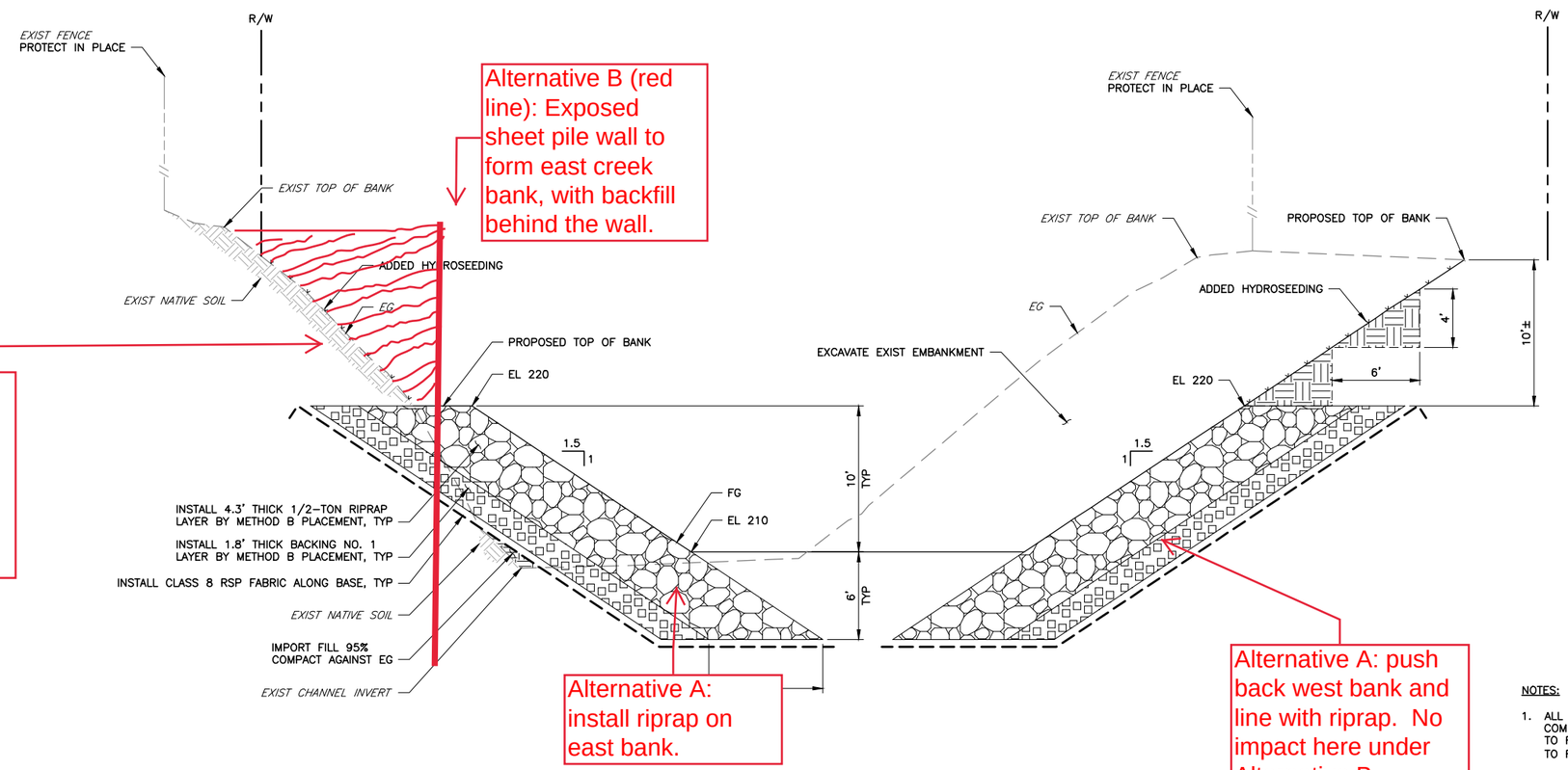
Valley Water

PROJECT NAME AND SHEET DESCRIPTION:

# CALABAZAS CREEK REHABILITATION PROJECT

PLAN
STA 44+00 TO STA 47+00

| SCALE | PROJECT NUMBER |
|---|---|
| AS SHOWN | 62084001 |
| VERIFY SCALES 0 1" BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY | SHEET CODE: C-12 |
| | SHEET NUMBER: XX OF XXX |




Alternative B (red line): Exposed sheet pile wall to form east creek bank, with backfill behind the wall.

Note: the existing grade in this area is a vertical bank, rather than the steeply sloped bank depicted here.

Alternative A: install riprap on east bank.

Alternative A: push back west bank and line with riprap. No impact here under Alternative B.

TYPICAL SECTION (K / C-12) SITE 8 CONSTRUCTION CONTROL LINE
LT BANK STA 44+50± TO STA 46+15±
RT BANK STA 44+47± TO STA 46+33±
SCALE: 1" = 5'

Site 8

NOTES:

1. ALL FILLS SHALL BE CONSTRUCTED IN 6" TO 8" LIFTS AND COMPACTED TO A MINIMUM 95% RELATIVE COMPACTION. SLOPES TO RECEIVE FILLS SHALL BE STRIPPED AND BENCHED PRIOR TO RECEIVING FILL, MAXIMUM HEIGHT IS 2' HIGH AT 1H:1V.
2. ALL TREES WITHIN THE PROJECT LIMITS ARE TO REMAIN, EXCEPT INDICATED ON SITE PLAN.

LEGEND:

- 1% FLOOD ELEVATION
- NEW GROUNDWORK CUTLINE
- NEW SURFACE
- GEOTEXTILE FABRIC
- RIPRAP
- NEW FILL
- BACKING NO. 1

| REV | DESCRIPTION | DATE | APPR | REFERENCE INFORMATION AND NOTES | DATE NOV 2019 | ENGINEERING CERTIFICATION | SANTA CLARA VALLEY WATER DISTRICT | PROJECT NAME AND SHEET DESCRIPTION: | SCALE AS SHOWN | PROJECT NUMBER 62084001 |
|---|---|---|---|---|---|---|---|---|---|---|
| | 60% PRELIMINARY 2019-11-13 | | | | DESIGN J. LO | | Valley Water | CALABAZAS CREEK REHABILITATION PROJECT | VERIFY SCALES 0 1" BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY | SHEET CODE: C-24 |
| | | | | | DRAWN J. FORD | | | TYPICAL SECTION | | SHEET NUMBER: XX OF XXX |
| | | | | | CHECKED R. NARSIM | PROJECT ENGINEER DATE | | | | |

DOCUMENT NUMBER: XXXX-X-0000-0000000.00

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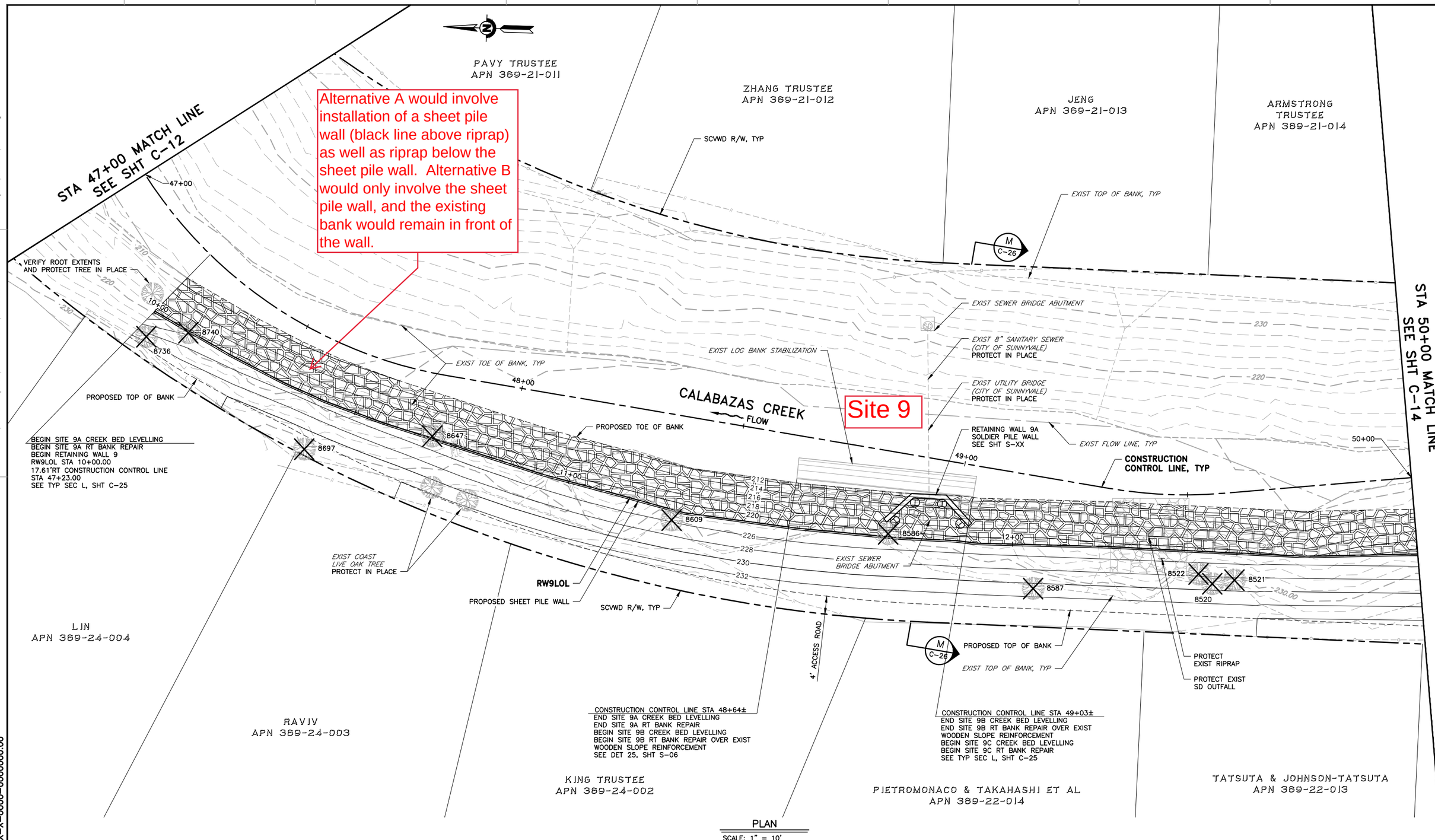
**Sites 9 and 10.** Comparison of Alterative A (red and yellow) and Alternative B (yellow only, existing slope in front of wall remains) at Site 9, which extends over 550 feet north from this location and overlaps with Site 10. Project elements depicted below are rough estimates.




PLAN

SCALE: 1" = 10'

| REV | DESCRIPTION | DATE | APPR |
|---|---|---|---|
| | 60% PRELIMINARY 2019-11-13 | | |

REFERENCE INFORMATION AND NOTES

1. NOT ALL TREES SHOWN. ONLY TREES NEAR PROPOSED WORK ARE SHOWN AND ARE FOR INFORMATIONAL PURPOSE ONLY. SEE SHEET C-16 FOR TREE REMOVAL TABLES.

| DATE | |
|---|---|
| NOV 2019 | |
| DESIGN | J. LO |
| DRAWN | J. FORD |
| CHECKED | R. NARSIM |

ENGINEERING CERTIFICATION

PROJECT ENGINEER DATE

SANTA CLARA VALLEY WATER DISTRICT

Valley Water

PROJECT NAME AND SHEET DESCRIPTION:

# CALABAZAS CREEK REHABILITATION PROJECT

PLAN
STA 47+00 TO STA 50+00

| SCALE | PROJECT NUMBER |
|---|---|
| AS SHOWN | 62084001 |
| VERIFY SCALES 0 1" BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY | SHEET CODE: C-13 SHEET NUMBER: XX OF XXX |

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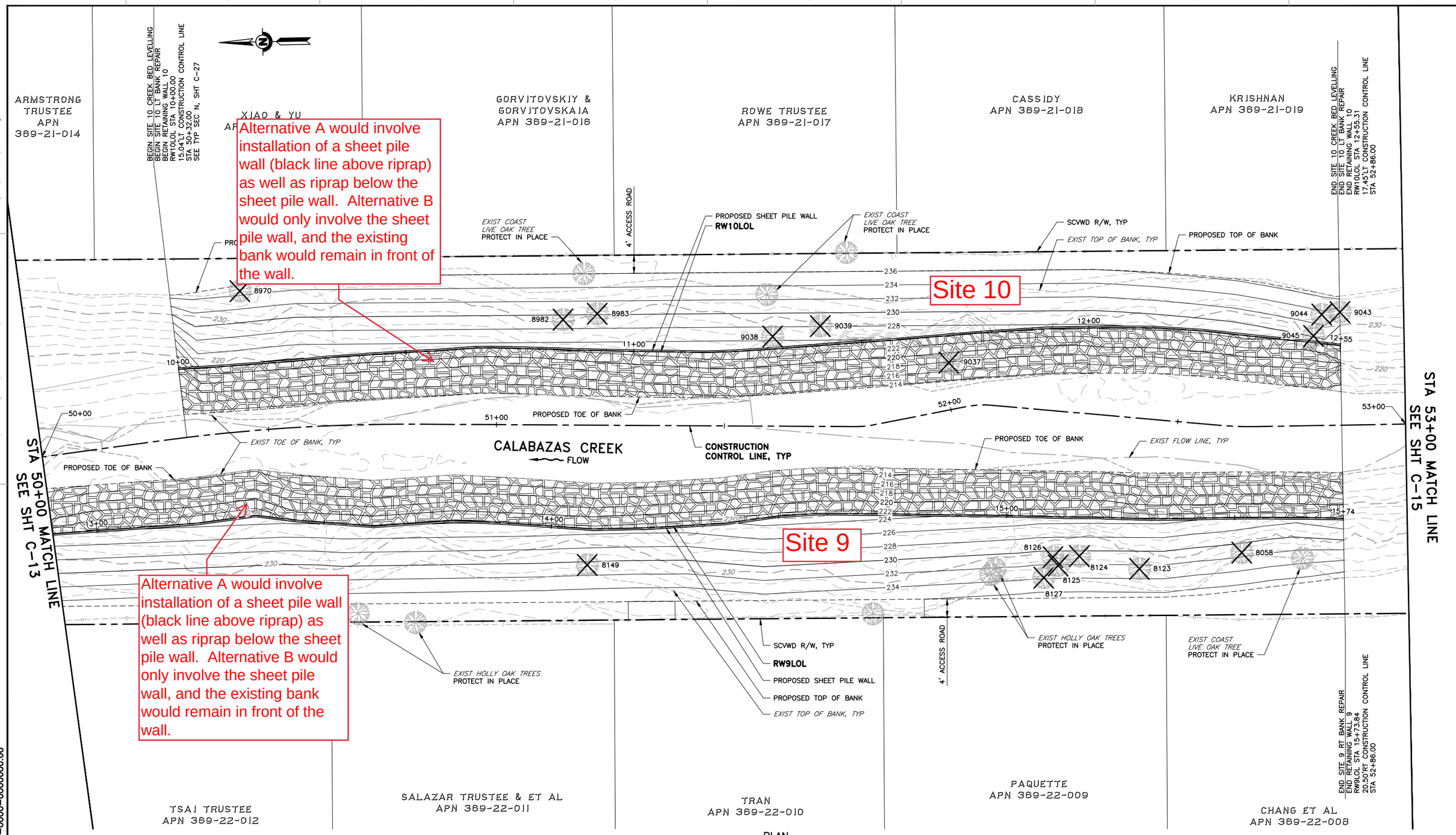
DOCUMENT NUMBER: XXXX-X-0000-0000000.00




PLAN

SCALE: 1" = 10'

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DOCUMENT NUMBER: XXXX-X-0000-0000000.00

| REV | DESCRIPTION | DATE | APPR |
|---|---|---|---|
| | 60% PRELIMINARY 2019-11-13 | | |

REFERENCE INFORMATION AND NOTES

1. NOT ALL TREES SHOWN. ONLY TREES NEAR PROPOSED WORK ARE SHOWN AND ARE FOR INFORMATIONAL PURPOSE ONLY. SEE SHEET C-16 FOR TREE REMOVAL TABLES.

| DATE | ENGINEERING CERTIFICATION |
|---|---|
| NOV 2019 | |
| DESIGN J. LO | |
| DRAWN J. FORD | |
| CHECKED R. NARSIM | PROJECT ENGINEER DATE |

SANTA CLARA VALLEY WATER DISTRICT

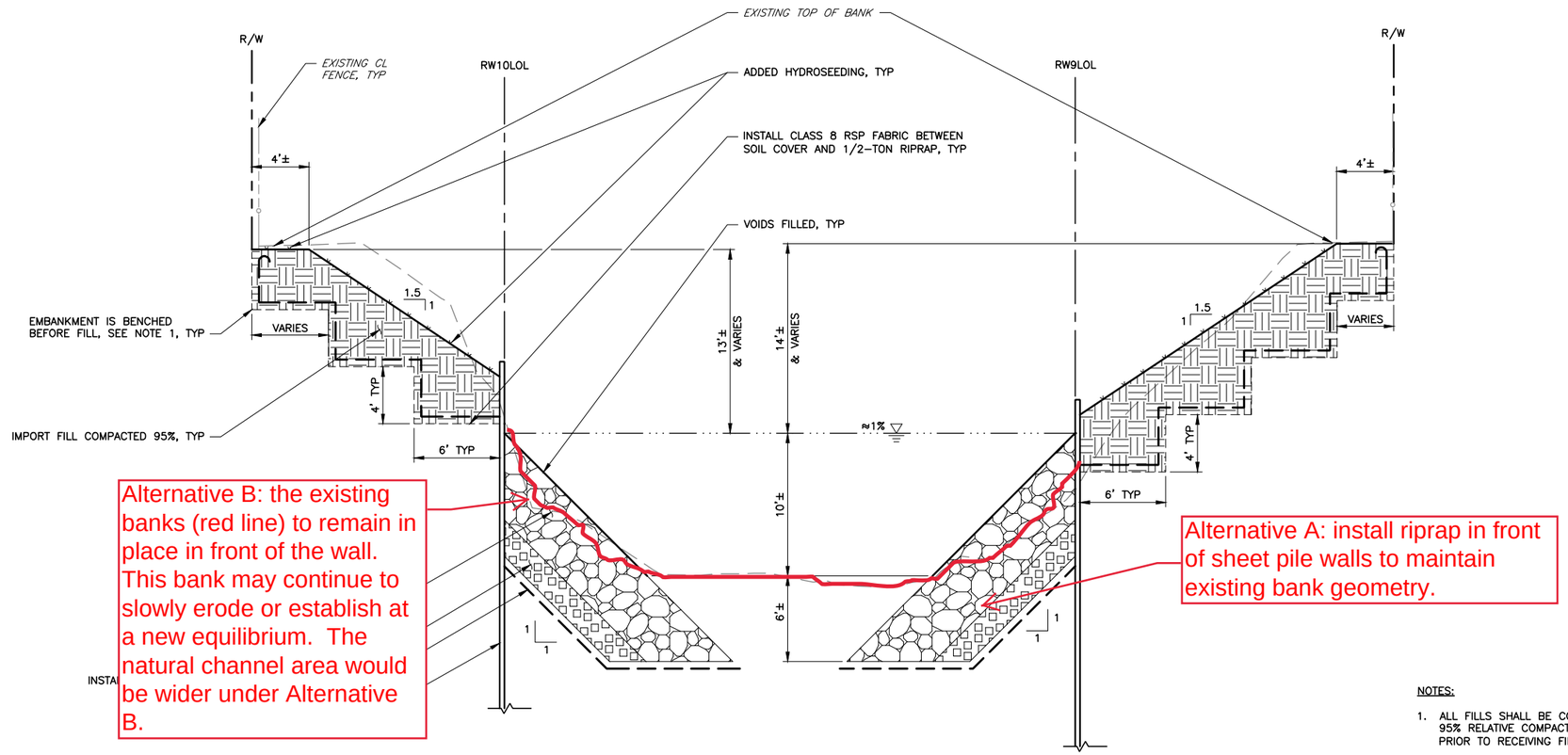
Valley Water

PROJECT NAME AND SHEET DESCRIPTION:

# CALABAZAS CREEK REHABILITATION PROJECT

PLAN
STA 50+00 TO STA 53+00

| SCALE | PROJECT NUMBER |
|---|---|
| AS SHOWN | 62084001 |
| VERIFY SCALES 0 1" BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY | SHEET CODE: C-14 SHEET NUMBER: XX OF XXX |




Alternative B: the existing banks (red line) to remain in place in front of the wall. This bank may continue to slowly erode or establish at a new equilibrium. The natural channel area would be wider under Alternative B.

Alternative A: install riprap in front of sheet pile walls to maintain existing bank geometry.

NOTES:

1. ALL FILLS SHALL BE CONSTRUCTED IN 6" TO 8" LIFTS AND COMPACTED TO A MINIMUM 95% RELATIVE COMPACTION. SLOPES TO RECEIVE FILLS SHALL BE STRIPPED AND BENCHED PRIOR TO RECEIVING FILL, MAXIMUM HEIGHT IS 2' HIGH AT 1H:1V.
2. ALL TREES WITHIN THE PROJECT LIMITS ARE TO REMAIN, EXCEPT INDICATED ON SITE PLAN.

TYPICAL SECTION (N / C-14) SITE 9C & 10 CONSTRUCTION CONTROL LINE
STA 50+32± TO STA 52+86±
SCALE: 1" = 5'

LEGEND:

- 1% FLOOD ELEVATION
- NEW GROUNDWORK CUTLINE
- NEW SURFACE
- GEOTEXTILE FABRIC
- RIPRAP
- NEW FILL
- BACKING NO. 1

| REV | DESCRIPTION | DATE | APPR | REFERENCE INFORMATION AND NOTES |
|---|---|---|---|---|
| | 60% PRELIMINARY 2019-11-13 | | | |

DATE NOV 2019
DESIGN J. LO
DRAWN J. FORD
CHECKED R. NARSIM

ENGINEERING CERTIFICATION
PROJECT ENGINEER DATE

SANTA CLARA VALLEY WATER DISTRICT
Valley Water

PROJECT NAME AND SHEET DESCRIPTION:
CALABAZAS CREEK REHABILITATION PROJECT
TYPICAL SECTION

SCALE AS SHOWN
VERIFY SCALES 0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

PROJECT NUMBER 62084001
SHEET CODE: C-27
SHEET NUMBER: XX OF XXX

DOCUMENT NUMBER: XXXX-X-0000-0000000.00

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**Calabazas Creek Rehabilitation Project: Streambank Protection Method Selection**

The Project site is located downstream of the Bollinger Road Bridge and upstream of Miller Avenue Bridge. Both bridge crossings have concrete inverts and act like a bed stabilizer, and the channel bed has reached equilibrium in this reach. Figure 1 presents the bed profile comparison between 2002 and 2017 survey data at this reach. There have been no major changes to the bed elevation in 16 years.

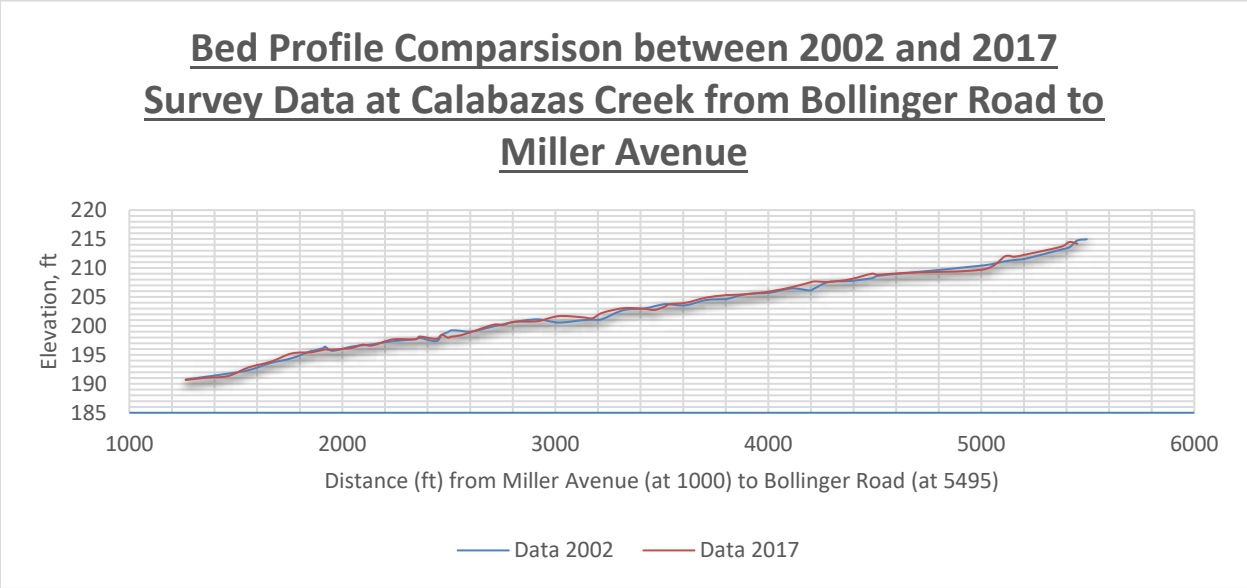



**Figure 1: Bed Profile Comparison between 2002 and 2017 Survey Data at Calabazas Creek from Bollinger Road to Miller Avenue**

Channel Evolution Model (CEM) is one of the tools in determining the evolutionary state of the channel from field reconnaissance. CEM has introduced the following five incised channel evolution phases (Figure 2).

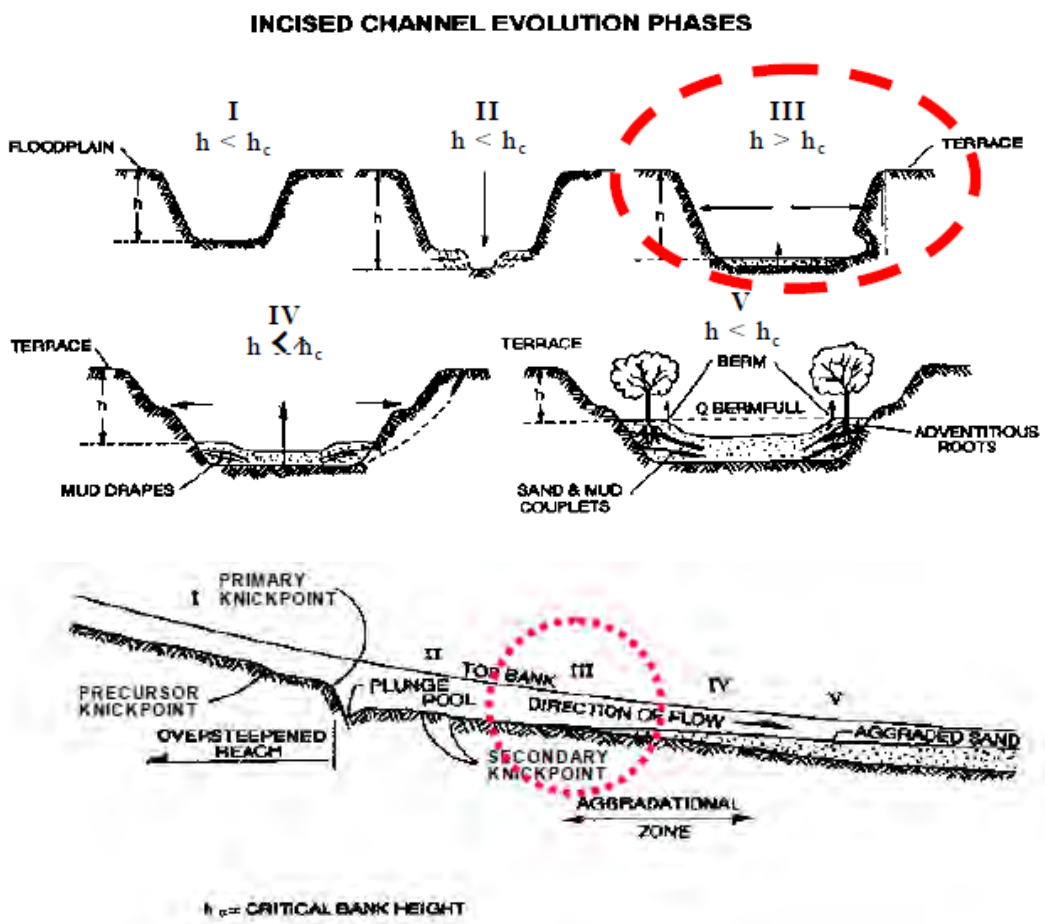



**Figure 2: Channel Evolution Model - Incised Channel Evolution Phases**

The project site is within the Type III phase, mass wasting of the banks with rapid channel widening is the dominant process. Therefore, steep slope stream banks are visible all along this channel reach. The primary purpose of this project is to stabilize the stream bank at those pre-selected sections.

Streambank protection is related to two key factors: bank slope and stream velocity. In general, for a stable stream bank the bank slope should not be less than 2H to 1V, and the stream velocity for a vegetated stream bank should not be greater than 6 ft/s. In certain conditions, stream bed shear stress is another parameter considered in evaluating streambank protection. Valley Water has developed a Bank Stabilization Methods table (Table 1) as a guideline for Valley Water's Stream Maintenance Program (SMP).

Table 1. Bank Stabilization Methods (From 2013 SMP Manual, Table 6-1)

| I.D. No. | Method | Appropriate Slope Angle For Method | Scour Velocity Supported (feet per second) | Hard-/Soft-scape |
|---|---|---|---|---|
| 1 | Earth Repair | 2:1 or flatter | ≤ 6fps | Soft |
| 1A | Earth Repair with Buried Rock | 1.5:1 or flatter | ≤ 6fps | Soft |
| 1B | Earth Repair with Rock Base | 2:1 or flatter for earth repair section;<br>1.5:1 or flatter for boulder section | ≤ 6fps | Hard if rock area is vegetated<br>Hard if rock area is not vegetated |
| 2 | Live Construction | 2:1 or flatter | ≤ 6fps | Soft |
| 2A | Live Construction with Boulder Base | 2:1 or flatter for live construction;<br>1.5:1 or flatter for boulder section | ≤ 6fps | Hybrid if rock area is vegetated<br>Hard if rock area is not vegetated |
| 2B | Live Construction with Log Base | 2:1 or flatter for live construction;<br>1:1 or flatter for log toe section | ≤ 15 fps | Soft |
| 3 | Contour Wattling | 2:1 or flatter | ≤ 6fps | Soft |
| 3A | Contour Wattling with Boulder Base | 2:1 or flatter for contour wattling area;<br>1.5:1 or flatter for boulder section | ≤ 6fps | Hybrid if rock area is vegetated<br>Hard if rock area is not vegetated |
| 3B | Contour Wattling with Log Base | 2:1 or flatter for contour wattling area, 1.5:1 or flatter for log toe section | ≤ 15 fps | Soft |
| 4 | Brush Mattress (Brush Layering) | 2:1 or flatter | ≤ 6fps | Soft |
| 4A | Brush Mattress (Brush Layering) with Boulder Base | 2:1 or flatter for brush mattress; 1.5:1 or flatter for boulder | ≤ 6fps | Hybrid if rock area is vegetated<br>Hard if rock area is not vegetated |
| 4B | Brush Mattress (Brush Layering) with Log Base | 2:1 or flatter for brush mattress;<br>1:1 or flatter for log toe | ≤ 15 fps | Soft |
| 5 | Surface Matting (Erosion Mats) | 2:1 or flatter | ≤ 12 fps | Soft |
| 5A | Surface Matting (Erosion Mats) with Boulder Base | 2:1 or flatter for erosion mat;<br>1.5:1 or flatter for boulder | ≤ 6fps if boulders are planted with live stakes;<br>12 fps if boulders not planted | Hybrid if rock area is vegetated<br>Hard if rock area is not vegetated |
| 5B | Surface Matting (Erosion Mats) with Log Base | 2:1 or flatter for erosion mat section;<br>1:1 or flatter for boulder | ≤ 15 fps | Soft |

**Cont'd** Table 1. Bank Stabilization Methods (From 2013 SMP Manual, Table 6-1)

| I.D. No. | Method | Appropriate Slope Angle For Method | Scour Velocity Supported (feet per second) | Hard-/Soft-scape |
|---|---|---|---|---|
| 6 | Add Rock to Invert | N/A | For incised channels or scour holes d/s concrete lined areas | Hard |
| 6A | Rock Cross Vanes | N/A | For channels types "B" and "F" in Rosgen's stream classification | Hard |
| 6B | Root Wads and Boulders | N/A | ≤ 10 fps | Hybrid |
| 6C | Live Log Crib Walls | Slopes up to ¼:1 | 6 – 12 fps | Soft |
| 6D | Log Revetment | Slopes up to ¼:1 or flatter | ≤ 15 fps | Hybrid |
| 7 | Cellular Confinement System | Slopes up to ½:1 | ≤ 6 fps | Hard |
| 8 | Rock Blanket | Slopes up to 1.5:1, 2:1 preferable | ≤ 15 fps | Hard |
| 8A | Boulder Revetment | Slopes up to 1:1, 2:1 preferable | ≤ 6 fps if boulder joints planted; ≤ 15 fps if not planted | Hard |
| 8B | Boulder Revetment with Soil and Vegetation | Slopes up to 1:1, 2:1 preferable | ≤ 6 fps | Hybrid |
| 9 | Articulated Concrete Blocks | 0.75:1 up to 3:1 | ≤ 15 fps | Hard |
| 9A | Articulated Concrete Blocks with Planted Areas | 1:1 up to 3:1 | ≤ 15 fps | Hard |
| 10 | Concrete Crib Walls | Up to 1:1 | ≤ 15 fps for closed ACBs, ≤ 6 fps for open ACBs[3] | Hard |
| 11 | Sacked Concrete | Up to 1/2:1 | ≤ 15 fps | Hard |
| 12 | Gunite Slope Protection | Up to 0.1:1 | ≤ 15 fps | Hard |

Notes:

1. Mitigation ratio applies to the hardened area only.
2. Bank methods 1-9 that include hardscape will provide mitigation for those areas on-site, above the OHWM.
3. ACB: Articulated Concrete Blocks

Table 2 presents the relationship between the bank lining materials, permissible shear stress, and permissible velocity from the "Bank Stabilization Design Guidelines" (Table 4-2 published by US Department of Interior, Bureau of Reclamation Report No. SRH-2015-25).

**Table 2. Permissible Shear and Velocity Resistance Values for Selected Lining Materials**

| Boundary Category | Bank Material Type | Permissible Shear Stress (lb/sq ft) | Permissible Velocity (ft/sec) | Citation(s) ([2]) |
|---|---|---|---|---|
| Soils | Fine colloidal sand | 0.02 - 0.03 | 1.5 | A |
| | Sandy loam (noncolloidal) | 0.03 - 0.04 | 1.75 | A |
| | Alluvial silt (noncolloidal) | 0.045 - 0.05 | 2 | A |
| | Silty loam (noncolloidal) | 0.045 - 0.05 | 1.75 – 2.25 | A |
| | Firm loam | 0.075 | 2.5 | A |
| | Fine gravels | 0.075 | 2.5 | A |
| | Stiff clay | 0.26 | 3 – 4.5 | A, F |
| | Alluvial silt (colloidal) | 0.26 | 3.75 | A |
| | Graded loam to cobbles | 0.38 | 3.75 | A |
| | Graded silts to cobbles | 0.43 | 4 | A |
| | Shales and hardpan | 0.67 | 6 | A |
| Gravel/Cobble | 1-in. | 0.33 | 2.5 – 5 | A |
| | 2-in. | 0.67 | 3 – 6 | A |
| | 6-in. | 2.0 | 4 – 7.5 | A |
| | 12-in. | 4.0 | 5.5 – 12 | A |
| Vegetation | Class A turf | 3.7 | 6 – 8 | E, N |
| | Class B turf | 2.1 | 4 – 7 | E, N |
| | Class C turf | 1.0 | 3.5 | E, N |
| | Long native grasses | 1.2 – 1.7 | 4 – 6 | G, H, L, N |
| | Short native and bunch grass | 0.7 - 0.95 | 3 – 4 | G, H, L, N |
| | Reed plantings | 0.1-0.6 | N/A | E, N |
| | Hardwood tree plantings | 0.41-2.5 | N/A | E, N |
| Temporary Degradable RECPs | Jute net | 0.45 | 1 – 2.5 | E, H, M |
| | Straw with net | 1.5 – 1.65 | 1 – 3 | E, H, M |
| | Coconut fiber with net | 2.25 | 3 – 4 | E, M |
| | Fiberglass roving | 2.00 | 2.5 – 7 | E, H, M |
| Non-Degradable RECPs | Unvegetated | 3.00 | 5 – 7 | E, G, M |
| | Partially established | 4.0-6.0 | 7.5 – 15 | E, G, M |
| | Fully vegetated | 8.00 | 8 – 21 | F, L, M |

**Cont'd** Table 2. Permissible Shear and Velocity Resistance Values for Selected Lining Materials

| Boundary Category | Bank Material Type | Permissible Shear Stress (lb/sq ft) | Permissible Velocity (ft/sec) | Citation(s) ([2]) |
|---|---|---|---|---|
| Riprap | 6 – in. d50 | 2.5 | 5 – 10 | H |
| | 9 – in. d50 | 3.8 | 7 – 11 | H |
| | 12 – in. d50 | 5.1 | 10 – 13 | H |
| | 18 – in. d50 | 7.6 | 12 – 16 | H |
| | 24 – in. d50 | 10.1 | 14 – 18 | E |
| Soil Bioengineering | Wattles | 0.2 – 1.0 | 3 | C, I, J, N |
| | Reed fascine | 0.6-1.25 | 5 | E |
| | Coir roll | 3 – 5 | 8 | E, M, N |
| | Vegetated coir mat | 4 – 8 | 9.5 | E, M, N |
| | Live brush mattress (initial) | 0.4 – 4.1 | 4 | B, E, I |
| | Live brush mattress (grown) | 3.90-8.2 | 12 | B, C, E, I, N |
| | Brush layering (initial/grown) | 0.4 – 6.25 | 12 | E, I, N |
| | Live fascine | 1.25-3.10 | 6 – 8 | C, E, I, J |
| | Live willow stakes | 2.10-3.10 | 3 – 10 | E, N, O |
| Hard Surfacing | Gabions | 10 | 14 – 19 | D |
| | Concrete | 12.5 | >18 | H |

[1] Ranges of values generally reflect multiple sources of data or different testing conditions.

[2] Citations:

A. Chang, H.H. (1988).
B. Florineth. (1982)
C. Gerstgraser, C. (1998)
D. Goff, K. (1999).
E. Gray, D.H., and Sotir, R.B. (1996)
F. Julien, P.Y. (1995).
G. Kouwen, N.; Li, R.M.; and Simons, D.B., (1980)
H. Norman, J. N. (1975)
I. Schiechtl, H.M. and R. Stern. (1996).
J. Schoklitsch, A. (1937)
K. Sprague, C.J. (1999).
L. Temple, D.M. (1980).
M. TXDOT (1999)
N. Data from Author (2001)
O. USACE (1997).

The stream bank slopes at the project sites are in the range from near vertical to 1H:1V. The 1% flow stream velocity is in the order of 10 ft/s. The 1% flow channel bed shear stress is in the range from 0.67 to 1.59 lb/ft$^2$. Following Valley Water's guidelines and other published engineering guidelines, the project team has selected the riprap bank protection method (Alternative A) and sheet pile retaining wall method (Alternative B) as two final alternatives for protecting the existing failed stream banks.

**Based on the HEC-RAS hydraulic model study and an environmental impact evaluation study, it is concluded that Alternative B (sheet pile retaining wall method) is better than Alternative A (riprap method) at sites 5, 8, 9, and 10.**

# Calabazas Creek Rehabilitation Project: HEC-RAS Model Simulation

Three geometry conditions are simulated in this model study. They are the existing geometry condition, Alternative A geometry condition (riprap streambank protection method), and Alternative B geometry condition (sheet pile retaining wall streambank protection method).

The HEC-RAS numerical model simulation result shows the following:

**For 1% (100 Y) Flow Condition**

**<u>Site 5:</u>**

1. The 1% flow water elevation for the existing condition is 9.79 ft.
2. The 1% flow water elevation for the Alternative A condition is 10.26 ft.
3. The 1% flow water elevation for the Alternative B condition is 9.77 ft.
4. The 1% flow velocity for the existing condition is 6.38 ft/s.
5. The 1% flow velocity for the Alternative A condition is 7.08 ft/s.
6. The 1% flow velocity for the Alternative B condition is 6.24 ft/s.
7. The 1% flow channel bed shear stress for the existing condition is 1.03 $lb/ft^2$.
8. The 1% flow channel bed shear stress for the Alternative A condition is 1.27 $lb/ft^2$.
9. The 1% flow channel bed shear stress for the Alternative B condition is 0.90 $lb/ft^2$.

Alternative A reduced the existing flow area and increased the flow roughness (Manning's n value at the new rip-rap section). Those changes caused the water elevation to increase from 9.79 ft to 10.26 ft, the flow velocity to increase from 6.38 ft/s to 7.08 ft/s, and the channel bed shear stress to increase from 1.03 $lb/ft^2$ to 1.27 $lb/ft^2$.

Alternative B might increase the existing flow area (assumed the soil in front of the sheet pile was eroded due to no maintenance) and reduced the flow roughness (Manning's n value at the sheet pile section). Those changes caused the water elevation to reduce from 9.79 ft to 9.77 ft, the flow velocity to reduce from 6.38 ft/s to 6.24 ft/s and the channel bed shear stress to reduce from 1.03 $lb/ft^2$ to 0.90 $lb/ft^2$.

From a purely hydraulic point of view, Alternative B is better than Alternative A at Site 5.

**<u>Site 8</u>**

1. The 1% flow water elevation for the existing condition is 9.75 ft.
2. The 1% flow water elevation for the Alternative A condition is 10.02 ft.
3. The 1% flow water elevation for the Alternative B condition is 9.69 ft.
4. The 1% flow velocity for the existing condition is 6.39 ft/s.
5. The 1% flow velocity for the Alternative A condition is 5.51 ft/s.
6. The 1% flow velocity for the Alternative B condition is 6.76 ft/s.
7. The 1% flow channel bed shear stress for the existing condition is 1.55 $lb/ft^2$.

8. The 1% flow channel bed shear stress for the Alternative A condition is 0.67 lb/ft$^2$.
9. The 1% flow channel bed shear stress for the Alternative B condition is 1.47 lb/ft$^2$.

Alternative A increased the existing flow area and flow roughness (Manning's n value at the new rip-rap sections on both right and left bank). Those changes caused the water elevation to increase from 9.75 ft to 10.02 ft, the flow velocity to reduce from 6.39 ft/s to 5.51 ft/s, and the channel bed shear stress to reduce from 1.55 lb/ft$^2$ to 0.67 lb/ft$^2$.

Alternative B reduced the existing flow area and the flow roughness (Manning's n value at the sheet pile section). Those changes caused the water elevation to reduce from 9.75 ft to 9.69 ft, the flow velocity to increase from 6.39 ft/s to 6.76 ft/s, and the channel bed shear stress to reduce from 1.55 lb/ft$^2$ to 1.47 lb/ft$^2$.

From a purely hydraulic point of view, Alternative A is better than Alternative B at Site 8.

## Site 9

1. The 1% flow water elevation for the existing condition is 9.22 ft.
2. The 1% flow water elevation for the Alternative A condition is 9.09 ft.
3. The 1% flow water elevation for the Alternative B condition is 9.17 ft.
4. The 1% flow velocity for the existing condition is 8.37 ft/s.
5. The 1% flow velocity for the Alternative A condition is 8.54 ft/s.
6. The 1% flow velocity for the Alternative B condition is 7.06 ft/s.
7. The 1% flow channel bed shear stress for the existing condition is 1.52 lb/ft$^2$.
8. The 1% flow channel bed shear stress for the Alternative A condition is 1.59 lb/ft$^2$.
9. The 1% flow channel bed shear stress for the Alternative B condition is 1.06 lb/ft$^2$.

Alternative A increased the existing flow area and the flow roughness (Manning's n value at the new rip-rap section). Those changes caused the water elevation to reduce from 9.22 ft to 9.09 ft, the flow velocity to increase from 8.37 ft/s to 8.54 ft/s, and the channel bed shear stress to increase from 1.52 lb/ft$^2$ to 1.59 lb/ft$^2$.

Alternative B might increase the existing flow area (assumed the soil in front of the sheet pile was eroded due to no maintenance) and reduced the flow roughness (Manning's n value at the sheet pile section). Those changes caused the water elevation to reduce from 9.22 ft to 9.17 ft, the flow velocity to reduce from 8.37 ft/s to 7.06 ft/s, and the channel bed shear stress to reduce from 1.52 lb/ft$^2$ to 1.06 lb/ft$^2$.

From a purely hydraulic point of view, Alternative B is better than Alternative A at Site 9.

## Sites 9 & 10 (overlap)

1 The 1% flow water elevation for the existing condition is 9.17 ft.
2. The 1% flow water elevation for the Alternative A condition is 9.11 ft.
3. The 1% flow water elevation for the Alternative B condition is 8.62 ft.

4. The 1% flow velocity for the existing condition is 7.86 ft/s.
5. The 1% flow velocity for the Alternative A condition is 7.94 ft/s.
6. The 1% flow velocity for the Alternative B condition is 6.75 ft/s.
7. The 1% flow channel bed shear stress for the existing condition is 1.35 lb/ft$^2$.
8. The 1% flow channel bed shear stress for the Alternative A condition is 1.38 lb/ft$^2$.
9. The 1% flow channel bed shear stress for the Alternative B condition is 0.98 lb/ft$^2$.

Alternative A increased the flow area and the flow roughness (Manning's n value at the new rip-rap sections on both side). Those changes caused the water elevation to reduce from 9.17 ft to 9.11 ft, the flow velocity to increase from 7.86 ft/s to 7.94 ft/s, and the channel bed shear stress to increase from 1.35 lb/ft$^2$ to 1.38 lb/ft$^2$.

Alternative B might increase the existing flow area (assumed the soil in front of the sheet pile was eroded due to no maintenance) and reduced the flow roughness (Manning's n value at the sheet pile section). Those changes caused the water elevation to reduce from 9.17 ft to 8.62 ft, the flow velocity to reduce from 7.86 ft/s to 6.75 ft/s, and the channel bed shear stress to reduce from 1.35 lb/ft$^2$ to 0.98 lb/ft$^2$.

From a purely hydraulic point of view, Alternative B is better than Alternative A at Sites 9 & 10.

**For 43% (2.33 Y) Flow Condition (close to ordinary high water)**

**<u>Site 5:</u>**

1 The 43% flow water elevation for the existing condition is 5.54 ft.
2 The 43% flow water elevation for the alternative A condition is 6.32 ft.
3 The 43% flow water elevation for the Alternative B condition is 5.53 ft.
4 The 43% flow velocity for the existing condition is 4.70 ft/s.
5 The 43% flow velocity for the Alternative A condition is 4.92 ft/s.
6 The 43% flow velocity for the Alternative B condition is 4.23 ft/s.
7 The 43% flow channel bed shear stress for the existing condition is 0.63 lb/ft$^2$.
8 The 43% flow channel bed shear stress for the Alternative A condition is 0.69 lb/ft$^2$.
9 The 43% flow channel bed shear stress for the Alternative B condition is 0.48 lb/ft$^2$.

Alternative A reduced the existing flow area and increased the flow roughness (Manning's n value at the new rip-rap section). Those changes caused the water elevation to increase from 5.54 ft to 6.32 ft, the flow velocity to increase from 4.70 ft/s to 4.92 ft/s, and the channel bed shear stress to increase from 0.63 lb/ft$^2$ to 0.69 lb/ft$^2$.

Alternative B might increase the existing flow area (assumed the soil in front of the sheet pile was eroded due to no maintenance) and reduced the flow roughness (Manning's n value at the sheet pile section). Those changes caused the water elevation to reduce from 5.54 ft to 5.53 ft, the flow velocity to reduce from 4.70 ft/s to 4.23 ft/s, and the channel bed shear stress to reduce from 0.63 lb/ft$^2$ to 0.48 lb/ft$^2$.

From a purely hydraulic point of view, Alternative B is better than Alternative A at Site 5.

**Site 8:**

1. The 43% flow water elevation for the existing condition is 5.16 ft.
2. The 43% flow water elevation for the Alternative A condition is 5.46 ft.
3. The 43% flow water elevation for the Alternative B condition is 5.14 ft.
4. The 43% flow velocity for the existing condition is 5.26 ft/s.
5. The 43% flow velocity for the Alternative A condition is 3.93 ft/s.
6. The 43% flow velocity for the Alternative B condition is 5.17 ft/s.
7. The 43% flow channel bed shear stress for the existing condition is 0.92 $lb/ft^2$.
8. The 43% flow channel bed shear stress for the Alternative A condition is 0.38 $lb/ft^2$.
9. The 43% flow channel bed shear stress for the Alternative B condition is 0.75 $lb/ft^2$.

Alternative A increased the existing flow area and flow roughness (Manning's n value at the new rip-rap sections on both right and left bank). Those changes caused the water elevation to increase from 5.16 ft to 5.46 ft, the flow velocity to reduce from 5.26 ft/s to 3.93 ft/s, and the channel bed shear stress to reduce from 0.92 $lb/ft^2$ to 0.38 $lb/ft^2$.

Alternative B reduced the existing flow area and the flow roughness (Manning's n value at the sheet pile section). Those changes caused the water elevation to reduce from 5.16 ft to 5.14 ft, the flow velocity to reduce from 5.26 ft/s to 5.17 ft/s, and the channel bed shear stress to reduce from 0.92 $lb/ft^2$ to 0.75 $lb/ft^2$.

From a purely hydraulic point of view, Alternative A is better than Alternative B at Site 8.

**Site 9**

1. The 43% flow water elevation for the existing condition is 4.86 ft.
2. The 43% flow water elevation for the Alternative A condition is 4.82 ft.
3. The 43% flow water elevation for the Alternative B condition is 4.64 ft.
4. The 43% flow velocity for the existing condition is 6.01 ft/s.
5. The 43% flow velocity for the Alternative A condition is 6.07 ft/s.
6. The 43% flow velocity for the Alternative B condition is 4.82 ft/s.
7. The 43% flow channel bed shear stress for the existing condition is 0.92 $lb/ft^2$.
8. The 43% flow channel bed shear stress for the Alternative A condition is 0.94 $lb/ft^2$.
9. The 43% flow channel bed shear stress for the Alternative B condition is 0.59 $lb/ft^2$.

Alternative A increased the existing flow area and the flow roughness (Manning's n value at the new rip-rap section). Those changes caused the water elevation to reduce from 4.86 ft to 4.82 ft, the flow velocity to increase from 6.01 ft/s to 6.07 ft/s, and the channel bed shear stress to increase from 0.92 $lb/ft^2$ to 0.94 $lb/ft^2$.

Alternative B might increase the existing flow area (assumed the soil in front of the sheet pile was eroded due to no maintenance) and reduced the flow roughness (Manning's n value at the sheet pile section). Those changes caused the water elevation to reduce from 4.86 ft to 4.64 ft, the flow velocity to reduce from 6.01 ft/s to 4.82 ft/s, and the channel bed shear stress to reduce from 0.92 lb/ft$^2$ to 0.59 lb/ft$^2$.

From a purely hydraulic point of view, Alternative B is better than Alternative A at Site 9.

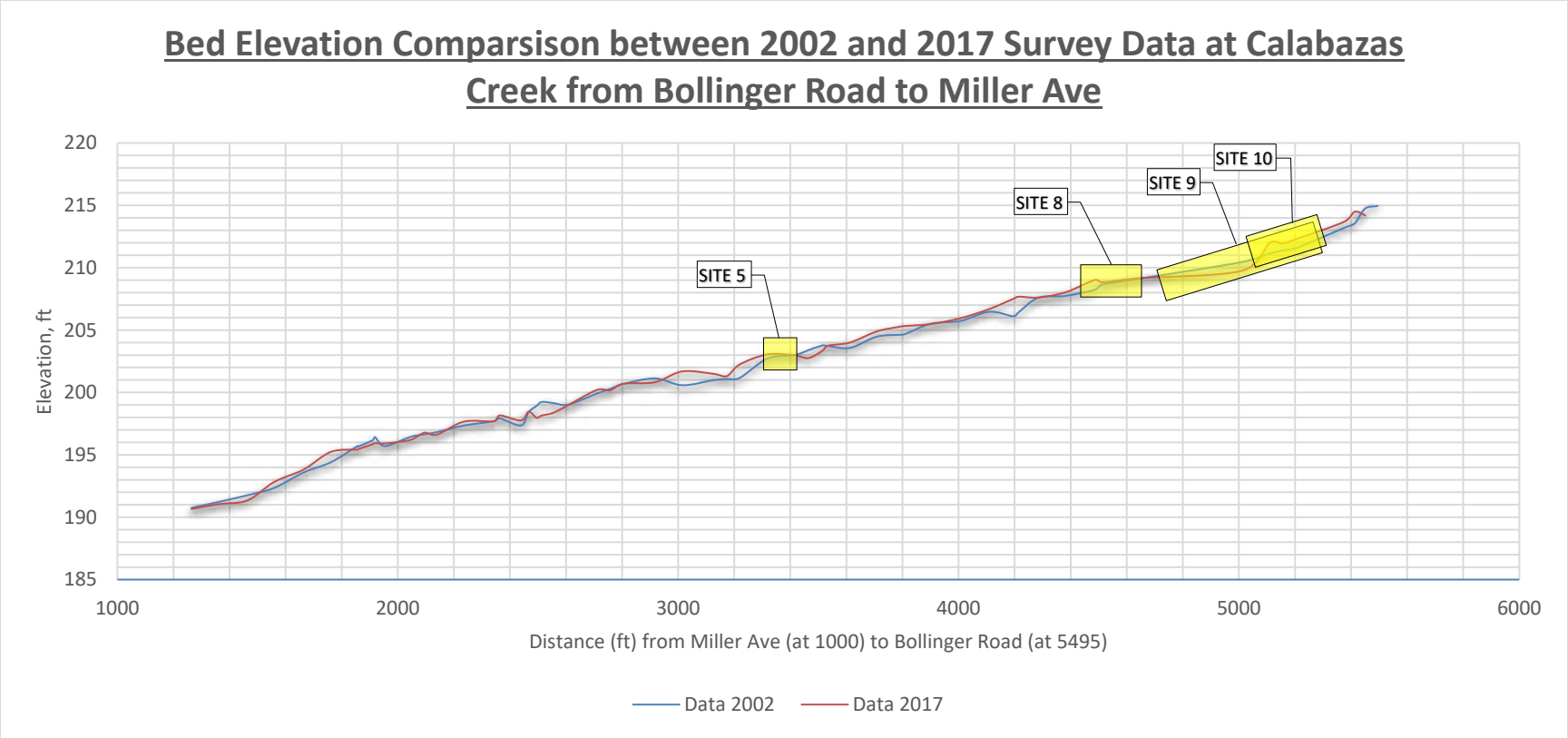
**At sites 9 & 10:**

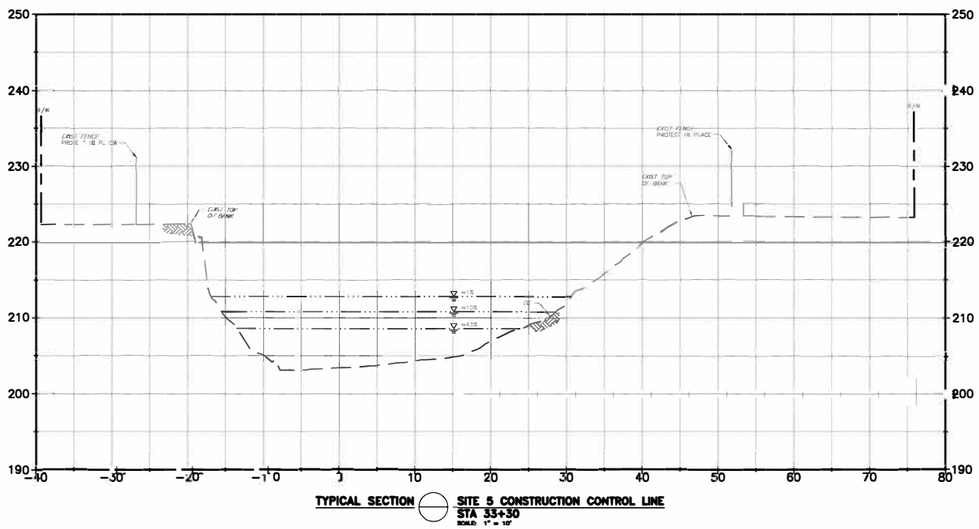
1. The 43 % flow water elevation for the existing condition is 4.94 ft.
2. The 43 % flow water elevation for the alternative A condition is 4.93 ft.
3. The 43 % flow water elevation for the Alternative B condition is 4.01 ft.
4. The 43% flow velocity for the existing condition is 5.90 ft/s.
5. The 43% flow velocity for the Alternative A condition is 5.91 ft/s.
6. The 43% flow velocity for the Alternative B condition is 4.64 ft/s.
7. The 43% flow channel bed shear stress for the existing condition is 0.93 lb/ft$^2$.
8. The 43% flow channel bed shear stress for the Alternative A condition is 0.93 lb/ft$^2$.
9. The 43% flow channel bed shear stress for the Alternative B condition is 0.90 lb/ft$^2$.

Alternative A increased the flow area and the flow roughness (Manning's n value at the new rip-rap sections on both side). Those changes caused the water elevation to reduce from 4.94 ft to 4.93 ft, the flow velocity to increase from 5.90 ft/s to 5.91 ft/s, and no change on the channel bed shear stress with a value of 0.93 lb/ft$^2$.

Alternative B might increase the existing flow area (assumed the soil in front of the sheet pile was eroded due to no maintenance) and reduced the flow roughness (Manning's n value at the sheet pile section). Those changes caused the water elevation to reduce from 4.94 ft to 4.01 ft, the flow velocity to reduce from 5.90 ft/s to 4.64 ft/s, and the channel bed shear stress to reduce from 0.93 lb/ft$^2$ to 0.90 lb/ft$^2$.

From a purely hydraulic point of view, Alternative B is better than Alternative A at Sites 9 & 10.


Bed Elevation Comparsison between 2002 and 2017 Survey Data at Calabazas Creek from Bollinger Road to Miller Ave
220
215
210
205
200
195
190
185
Elevation, ft
1000
2000
3000
4000
5000
6000
Distance (ft) from Miller Ave (at 1000) to Bollinger Road (at 5495)
SITE 5
SITE 8
SITE 9
SITE 10
Data 2002
Data 2017




EXISITING

NOTES:

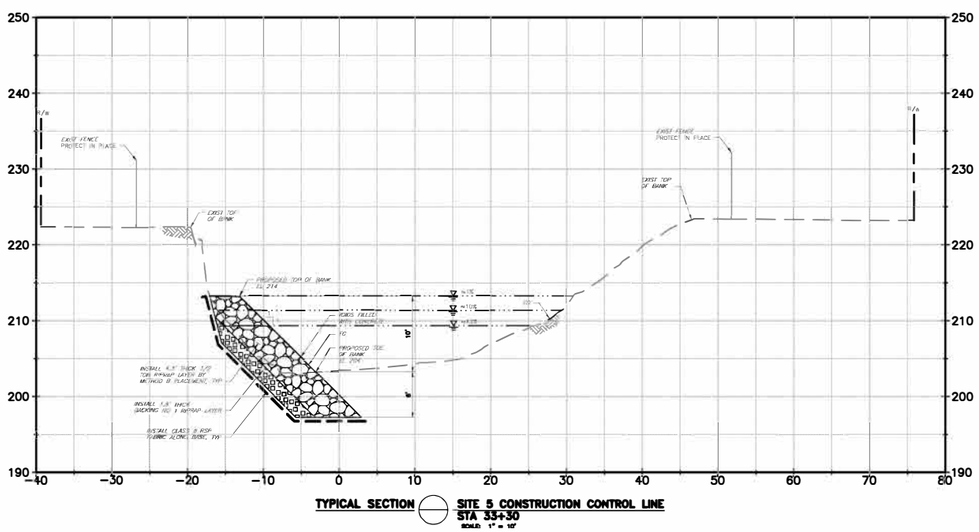
1. ALL FILLS SHALL BE CONSTRUCTED IN 6" TO 8" LIFTS AND COMPACTED TO A MINIMUM 95% RELATIVE COMPACTION. SLOPES TO RECEIVE FILLS SHALL BE STRIPPED AND BENCHED PRIOR TO RECEIVING FILL, MAXIMUM HEIGHT IS 2' HIGH AT 1H:1V.
2. ALL TREES WITHIN THE PROJECT LIMITS ARE TO REMAIN, EXCEPT INDICATED ON SITE PLAN.

LEGEND:

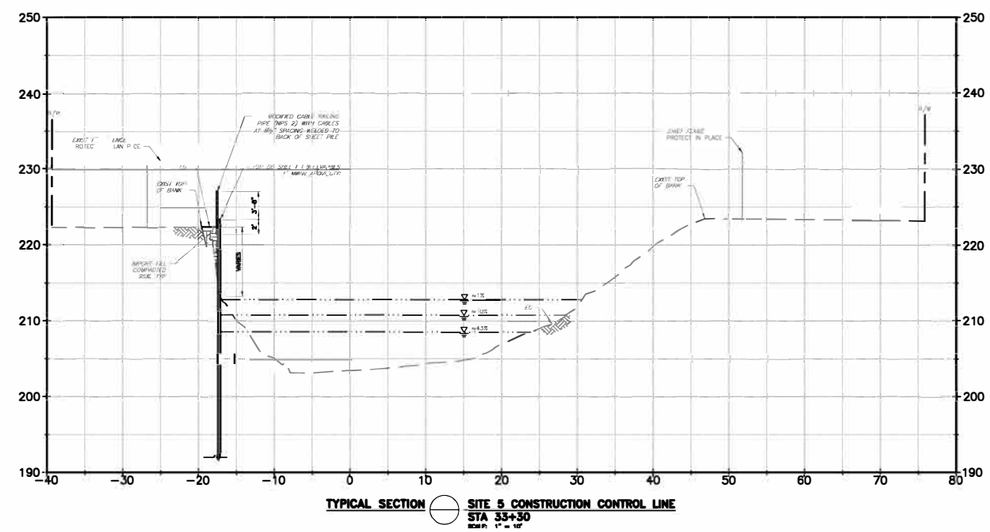
- 1%,10%,43% FLOOD ELEVATIONS
- NEW GROUNDWORK CUTLINE
- NEW SURFACE
- GEOTEXTILE FABRIC
- TOPSOIL
- RIPRAP
- NEW FILL
- BACKING NO. 1

| HEC-RAS Numerical Model Simulation Result | | | |
|---|---|---|---|
| Water Elevation (ft) | | | |
| | 1% (100 Y) | 10% (10 Y) | 43% (2.33 Y) |
| Existing | 9.79 | 7.77 | 5.54 |
| Alternative A (riprap) | 10.26 | 8.36 | 6.32 |
| Alternative B (sheet pile)* | 9.77 | 7.76 | 5.53 |
| Velocity (ft/s) | | | |
| | 1% (100 Y) | 10% (10 Y) | 43% (2.33 Y) |
| Existing | 6.38 | 5.55 | 4.70 |
| Alternative A (riprap) | 7.08 | 6.05 | 4.92 |
| Alternative B (sheet pile)* | 6.24 | 5.22 | 4.23 |
| Shear Stress ($lb/ft^2$) | | | |
| | 1% (100 Y) | 10% (10 Y) | 43% (2.33 Y) |
| Existing | 1.03 | 0.83 | 0.63 |
| Alternative A (riprap) | 1.27 | 0.98 | 0.69 |
| Alternative B (sheet pile)* | 0.9 | 0.67 | 0.48 |

*ALTERNATIVE B WATER LINE ELEVATIONS ASSUME THAT THE SOIL IN FRONT OF THE SHEET PILE WAS ERODED DUE TO NO MAINTENANCE.




ALTERNATIVE A (RIPRAP)




ALTERNATIVE B (SHEET PILE)

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DOCUMENT NUMBER: XXXX-X-0000-0000000.00

| REV | DESCRIPTION | DATE | APPR | REFERENCE INFORMATION AND NOTES |
|---|---|---|---|---|
| | | | | |

DATE: FEB 2020
DESIGN: J. LO
DRAWN: L. ANDER
CHECKED:

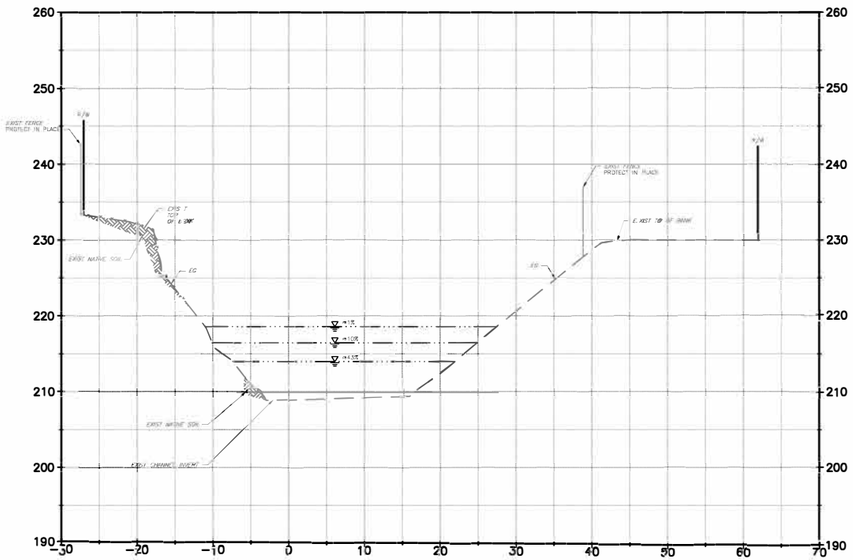
ENGINEERING CERTIFICATION
P. ROJECTENGINEER DATE

SANTA CLARA VALLEY WATER DISTRICT
Valley Water

PROJECT NAME AND SHEET DESCRIPTION:
CALABAZAS CREEK REHABILITATION PROJECT
SECTION SITE 5

SCALE: 1"=10'
VERIFY S CALEES
0 11"
BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

PROJECT NUMBER: 62084001
SHEET CODE:
SHEET NUMBER: OF XXX




EXISITING

NOTES:

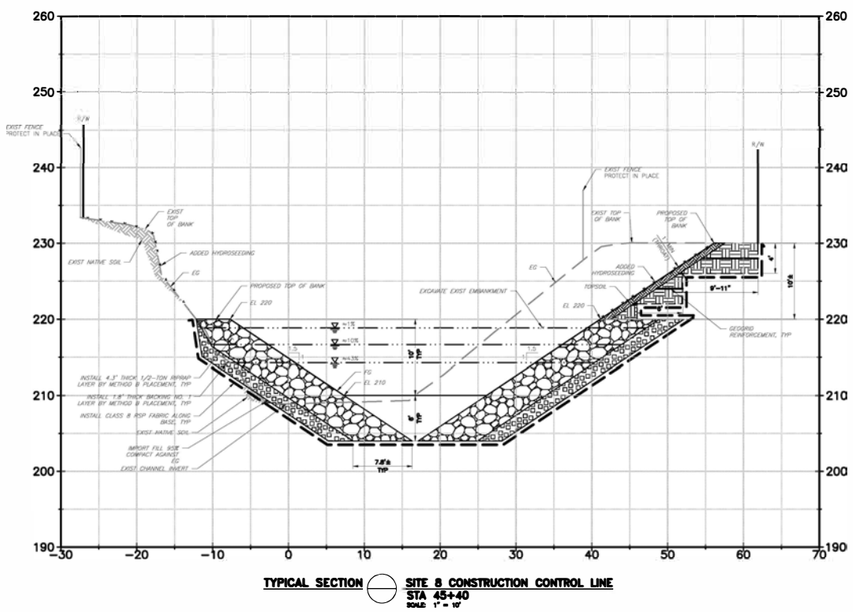
1. ALL FILLS SHALL BE CONSTRUCTED IN 6" TO 8" LIFTS AND COMPACTED TO A MINIMUM 95% RELATIVE COMPACTION. SLOPES TO RECEIVE FILLS SHALL BE STRIPPED AND BENCHED PRIOR TO RECEIVING FILL, MAXIMUM HEIGHT IS 2' HIGH AT 1H:1V.
2. ALL TREES WITHIN THE PROJECT LIMITS ARE TO REMAIN, EXCEPT INDICATED ON SITE PLAN.

LEGEND:

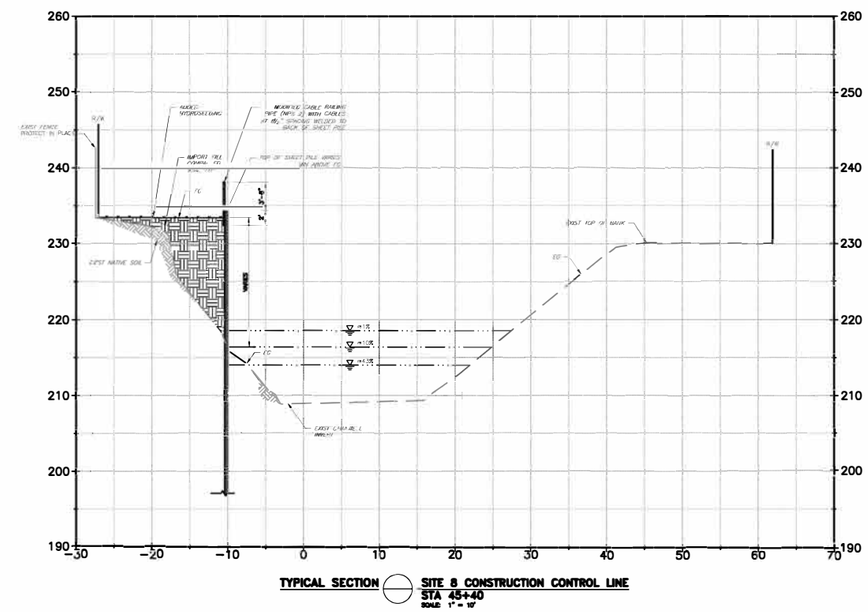
- 1%,10%,43% FLOOD ELEVATIONS
- NEW GROUNDWORK CUTLINE
- NEW SURFACE
- GEOTEXTILE FABRIC
- TOPSOIL
- RIPRAP
- NEW FILL
- BACKING NO. 1

| HEC-RAS Numerical Model Simulation Result | | | |
|---|---|---|---|
| Water Elevation (ft) | | | |
| | 1% (100 Y) | 10% (10 Y) | 43% (2.33 Y) |
| Existing | 9.75 | 7.59 | 5.16 |
| Alternative A (riprap) | 10.02 | 7.84 | 5.46 |
| Alternative B (sheet pile)* | 9.69 | 7.55 | 5.14 |
| Velocity (ft/s) | | | |
| | 1% (100 Y) | 10% (10 Y) | 43% (2.33 Y) |
| Existing | 6.39 | 5.90 | 5.26 |
| Alternative A (riprap) | 5.51 | 4.77 | 3.93 |
| Alternative B (sheet pile)* | 6.76 | 6.08 | 5.17 |
| Shear Stress (lb/ft$^2$) | | | |
| | 1% (100 Y) | 10% (10 Y) | 43% (2.33 Y) |
| Existing | 1.55 | 1.38 | 0.92 |
| Alternative A (riprap) | 0.67 | 0.52 | 0.38 |
| Alternative B (sheet pile)* | 1.47 | 1.26 | 0.75 |

*ALTERNATIVE B WATER LINE ELEVATIONS ASSUME THAT THE SOIL IN FRONT OF THE SHEET PILE WAS ERODED DUE TO NO MAINTENANCE.




ALTERNATIVE A (RIPRAP)




ALTERNATIVE B (SHEET PILE)

| REV | DESCRIPTION | DATE | APPR | REFERENCE INFORMATION AND NOTES |
|---|---|---|---|---|
| | | | | |

DATE: FEB 2020
DESIGN: J. LO
DRAWN: L. ANDER
CHECKED:

ENGINEERING CERTIFICATION
PROJECT ENGINEER DATE

SANTA CLARA VALLEY WATER DISTRICT
Valley Water

PROJECT NAME AND SHEET DESCRIPTION:
# CALABAZAS CREEK REHABILITATION PROJECT
## SECTION SITE 8

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VERIFY SCALES: 0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

PROJECT NUMBER: 62084001
SHEET CODE:
SHEET NUMBER: OF XXX

DOCUMENT NUMBER: XXXX-X-0000-0000000.00

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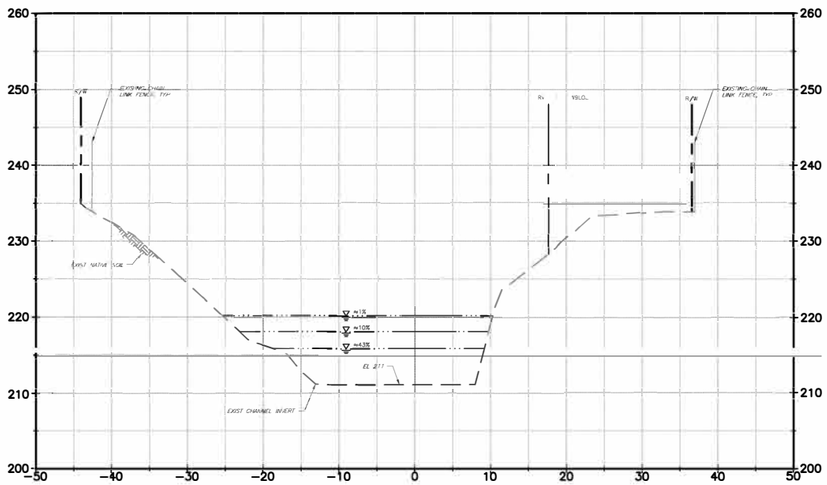
FILENAME: O:\5181 - Calabazas Creek\CAD\UPDATED_60% DD 1-22-2020\All 60% DD Plans (1-22-2020) From Jennifer\C-SECTIONS WORKING FILE.dwg




TYPICAL SECTION — SITE 9 CONSTRUCTION CONTROL LINE STA 48+94
SCALE: 1" = 10'

EXISITING

NOTES:

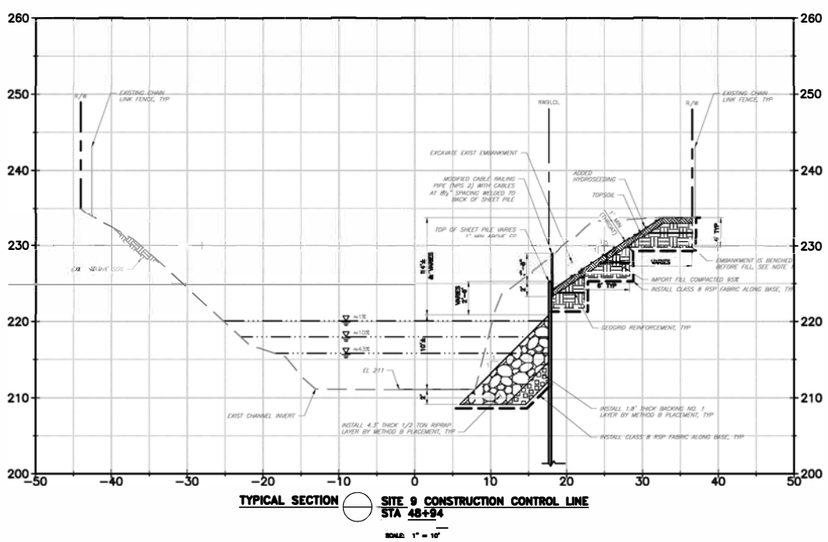
1. ALL FILLS SHALL BE CONSTRUCTED IN 6" TO 8" LIFTS AND COMPACTED TO A MINIMUM 95% RELATIVE COMPACTION. SLOPES TO RECEIVE FILLS SHALL BE STRIPPED AND BENCHED PRIOR TO RECEIVING FILL, MAXIMUM HEIGHT IS 2' HIGH AT 1H:1V.
2. ALL TREES WITHIN THE PROJECT LIMITS ARE TO REMAIN, EXCEPT INDICATED ON SITE PLAN.

LEGEND:

1%,10%,43% FLOOD ELEVATIONS
NEW GROUNDWORK CUTLINE
NEW SURFACE
GEOTEXTILE FABRIC
TOPSOIL
RIPRAP
NEW FILL
BACKING NO. 1

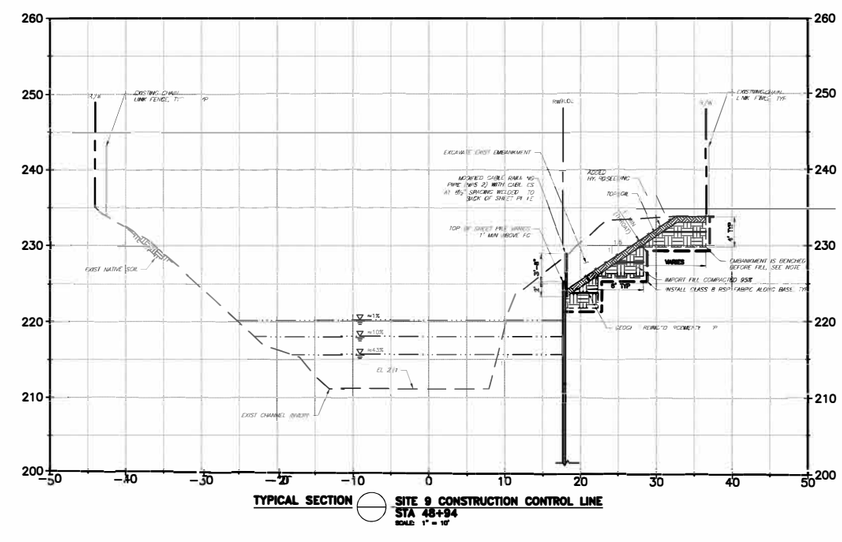
| HEC-RAS Numerical Model Simulation Result | | | |
|---|---|---|---|
| Water Elevation (ft) | | | |
| | 1% (100 Y) | 10% (10 Y) | 43% (2.33 Y) |
| Existing | 9.22 | 7.12 | 4.86 |
| Alternative A (riprap) | 9.09 | 6.99 | 4.82 |
| Alternative B (sheet pile)* | 9.17 | 7.00 | 4.64 |
| Velocity (ft/s) | | | |
| | 1% (100 Y) | 10% (10 Y) | 43% (2.33 Y) |
| Existing | 8.37 | 7.26 | 6.01 |
| Alternative A (riprap) | 8.54 | 7.43 | 6.07 |
| Alternative B (sheet pile)* | 7.06 | 5.95 | 4.82 |
| Shear Stress ($lb/ft^2$) | | | |
| | 1% (100 Y) | 10% (10 Y) | 43% (2.33 Y) |
| Existing | 1.52 | 1.22 | 0.92 |
| Alternative A (riprap) | 1.59 | 1.28 | 0.94 |
| Alternative B (sheet pile)* | 1.06 | 0.81 | 0.59 |

*ALTERNATIVE B WATER LINE ELEVATIONS ASSUME THAT THE SOIL IN FRONT OF THE SHEET PILE WAS ERODED DUE TO NO MAINTENANCE.




TYPICAL SECTION — SITE 9 CONSTRUCTION CONTROL LINE STA 48+94
SCALE: 1" = 10'

ALTERNATIVE A (RIPRAP)




TYPICAL SECTION — SITE 9 CONSTRUCTION CONTROL LINE STA 48+94
SCALE: 1" = 10'

ALTERNATIVE B (SHEET PILE)

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DOCUMENT NUMBER: XXXX-X-0000-0000000.00

| REV | DESCRIPTION | DATE | APPR | REFERENCE INFORMATION AND NOTES |
|---|---|---|---|---|
| | | | | |

DATE: FEB 2020
DESIGN: J. LO
DRAWN: L. ANDER
CHECKED:

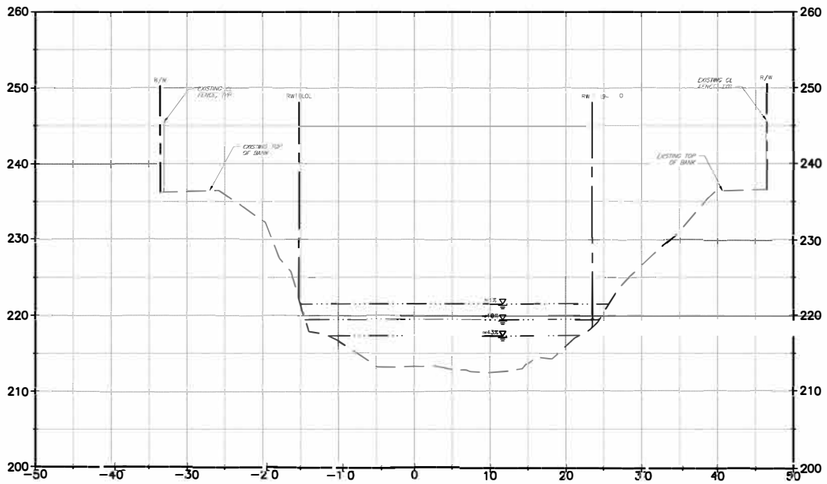
ENGINEERING CERTIFICATION
PROJECT ENGINEER DATE

SANTA CLARA VALLEY WATER DISTRICT
Valley Water

PROJECT NAME AND SHEET DESCRIPTION:
CALABAZAS CREEK REHABILITATION PROJECT
SECTION SITE 9

SCALE: 1"=10'
VERIFY SCALES: 0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

PROJECT NUMBER: 62084001
SHEET CODE:
SHEET NUMBER: OF XXX




TYPICAL SECTION — SITE 9 & 10 CONSTRUCTION CONTROL LINE
STA 52+07
SCALE 1" = 10'

EXISITING

NOTES:

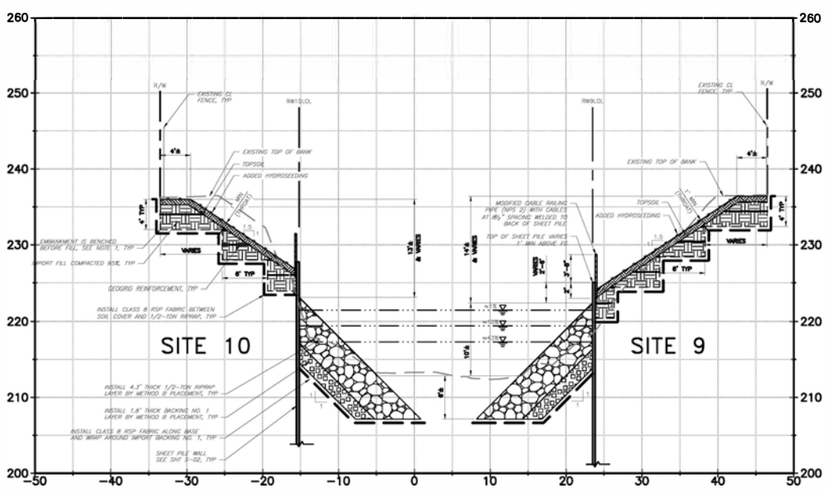
1. ALL FILLS SHALL BE CONSTRUCTED IN 6" TO 8" LIFTS AND COMPACTED TO A MINIMUM 95% RELATIVE COMPACTION. SLOPES TO RECEIVE FILLS SHALL BE STRIPPED AND BENCHED PRIOR TO RECEIVING FILL, MAXIMUM HEIGHT IS 2' HIGH AT 1H:1V.
2. ALL TREES WITHIN THE PROJECT LIMITS ARE TO REMAIN, EXCEPT INDICATED ON SITE PLAN.

LEGEND:

1%
1%,10%,43% FLOOD ELEVATIONS
NEW GROUNDWORK CUTLINE
NEW SURFACE
GEOTEXTILE FABRIC
TOPSOIL
RIPRAP
NEW FILL
BACKING NO. 1

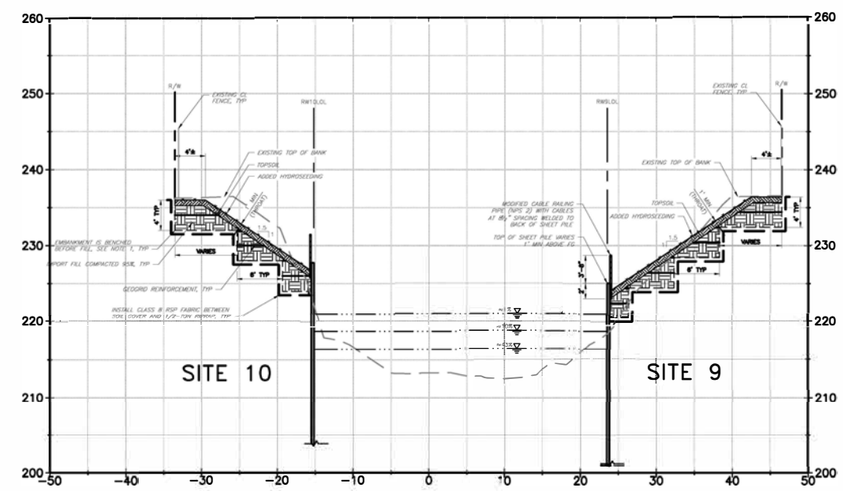
| HEC-RAS Numerical Model Simulation Result | | | |
|---|---|---|---|
| Water Elevation (ft) | | | |
| | 1% (100 Y) | 10% (10 Y) | 43% (2.33 Y) |
| Existing | 9.17 | 7.09 | 4.94 |
| Alternative A (riprap) | 9.11 | 7.04 | 4.93 |
| Alternative B (sheet pile)* | 8.62 | 6.38 | 4.01 |
| Velocity (ft/s) | | | |
| | 1% (100 Y) | 10% (10 Y) | 43% (2.33 Y) |
| Existing | 7.86 | 6.93 | 5.90 |
| Alternative A (riprap) | 7.94 | 7.00 | 5.91 |
| Alternative B (sheet pile)* | 6.75 | 5.65 | 4.64 |
| Shear Stress (lb/ft$^2$) | | | |
| | 1% (100 Y) | 10% (10 Y) | 43% (2.33 Y) |
| Existing | 1.35 | 1.14 | 0.93 |
| Alternative A (riprap) | 1.38 | 1.16 | 0.93 |
| Alternative B (sheet pile)* | 0.98 | 0.74 | 0.9 |

*ALTERNATIVE B WATER LINE ELEVATIONS ASSUME THAT THE SOIL IN FRONT OF THE SHEET PILE WAS ERODED DUE TO NO MAINTENANCE.




TYPICAL SECTION — SITE 9 & 10 CONSTRUCTION CONTROL LINE
STA 52+07
SCALE 1" = 10'

ALTERNATIVE A (RIPRAP)




TYPICAL SECTION — SITE 9 & 10 CONSTRUCTION CONTROL LINE
STA 52+07
SCALE 1" = 10'

ALTERNATIVE B (SHEET PILE)

USERNAME: LorsAnde 2/26/2020 11:00 AM
FILENAME: O:\5181 - Calabazas Creek\CAD\UPDATED_60% DD 1-22-2020\All 60% DD Plans (1-22-2020) From Jennifer\C-SECTIONS WORKING FILE.dwg

DOCUMENT NUMBER: XXXX-X-0000-0000000.00

| REV | DESCRIPTION | DATE | APPR | REFERENCE INFORMATION AND NOTES |
|---|---|---|---|---|
| | | | | |

DATE: FEB 2020
DESIGN: J. LO
DRAWN: L. ANDER
CHECKED

ENGINEERING CERTIFICATION
PROJECT ENGINEER DATE

SANTA CLARA VALLEY WATER DISTRICT
Valley Water

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# Appendix H
Response to Comments

## Response to Public Comments for the Mitigated Negative Declaration for the Calabazas Creek Bank Rehabilitation Project

The Draft MND was circulated to the State Clearinghouse, local and state agencies, interested organizations, and the general public. The 30-day public review period, which conforms to California Environmental Quality Act (CEQA) Guidelines §15105(b), began on September 18, 2020 and ended on October 19, 2020. The following table includes the comment letters and emails Valley Water received, as well as the Valley Water's responses. All changes to the Draft MND are described in the responses below and referenced by the page number in which the revised text appears in the Final MND.

| No. | Comment | Valley Water Response | MND Change (page in Final MND) |
|---|---|---|---|
| **Comment Letter A – Received from San Francisco Bay Regional Water Quality Control Board via Email on October 26, 2020** | | | |
| **A-1** | *Bank Stabilization Would Result in Significant Impact*<br><br>The draft MND is inadequate because it presents a preferred alternative that would degrade water quality but does not recognize those adverse impacts or propose appropriate mitigation for them, nor does the draft MND include other, less impactful construction alternatives. Although the draft MND states that natural bioengineering alternatives were analyzed but ruled out because of "high flow velocities and shear stress in the channel" (p. 2-3), the draft MND does not include any data or other information to qualify that conclusion, or descriptions of other alternatives that were analyzed. Valley Water's conclusion of no significant impact based on the Hydrology and Water Quality criterion is, therefore, unfounded, and we disagree with that finding. As noted below, the draft MND should be revised to address the following issues. Given that the proposed Project would degrade the Creek's riparian functions, we would be unable to issue water quality certification of the proposed Project. We would require additional analyses as described in the next comment, that a proposed project is the least environmentally damaging practicable alternative (LEDPA).<br><br>One way the proposed Project would adversely affect water quality is that at some of the bank repair sites, rock slope protection (RSP) | Per CEQA Guidelines Section15071, the contents of an MND are not required to include an evaluation of Project alternatives, as is the case with Environmental Impact Reports. As noted, Valley Water provided a rationale on the limitations of "soft" or bio-engineered bank protection options at the Project site, which are generally excluded due to the stream flow velocities, channel bed shear stress, flashy flows, deep incision, and narrow Project corridor (i.e., inability to lay back banks to a slope suitable for establishing native vegetation). However, additional information on Project alternatives has been included in Chapter 2, *Project Description*, under *Project Design Development Process*.<br><br>Further, while not required, Valley Water held a series of three interagency meetings with staff from the San Francisco Bay Regional Water Quality Control Board (RWQCB), California Department of Fish and Wildlife (CDFW), and U.S. Army Corps of Engineers (USACE) to discuss Project alternatives and mitigation. Through the course of these meetings, Valley Water described the alternatives under consideration (i.e., natural or bio-engineered bank protection, use of riprap exclusively, or a combination of riprap and sheet pile walls [the proposed Project]) and provided detailed hydrologic data (i.e., flow velocity, shear | 2-19 through 2-22, Appendix G (added) |

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| | would extend to 10 feet up the Creek banks and would be keyed in up to 6 feet deep beneath the creek bed. This would permanently degrade the functions inherent in soft-earthen substrates, which include nutrient cycling; adsorption and breakdown of some pollutants in stormwater runoff; and substrate for benthic invertebrate communities. This would permanently impact the Creek's cold freshwater habitat (COLD), warm freshwater habitat (WARM), and wildlife habitat (WILD) beneficial uses. The draft MND should be revised to recognize this impact as significant and provide appropriate mitigation to compensate for the impacts, if they are unavoidable.<br><br>Further, it is unclear whether the proposed Project would promote a stable creek design. At some of the erosion sites, the previously-constructed hardscape appears to have induced additional erosion, such as at Site 8, with erosion on the bare bank above the rock riprap, and at Site 9, with erosion on the mostly bare bank at the log revetment and overhead pipeline. This is not surprising since the Creek is sediment starved (MND, p. 4-21 and 4-65). Adding additional hardscape, as with the proposed Project, may not prevent additional erosion at the bank toes or ends of hardened sections of the banks, and may result in the same kinds of erosion problems as with the Creek's current conditions. The draft MND should be revised to incorporate evaluations of creek flow velocity, shear stress values, Manning's N roughness coefficients, and any other analyses used to evaluate the Project reach and alternatives to achieve the Project purpose.<br><br>At Sites 9 and 10, sheet pile would be pressed into the bank, extending from the top of bank to below the channel bed elevation, and behind the existing lower banks, leaving the lower banks intact. However, the draft MND states that the existing lower banks may erode with time, but this is reported as a benefit because it would purportedly create new waters of the U.S. (i.e., intermittent stream) by widening the Creek's cross section (p. 4-35).<br><br>This would be a significant impact because the Project could apparently induce erosion to the point that no Creek bank would remain. Accordingly, the draft MND should be revised to address | stress, water elevation, and bed profiles) to support the analysis (now included as Appendix G to the MND).<br><br>It was Valley Water's impression that the environmental agencies agreed that the proposed Project was the least impactful and practicable option for addressing the bank failures in the Project area.<br><br>Valley Water does not agree with the comment that the placement of RSP along the banks would result in a significant impact on water quality. RSP would be placed at six sites totaling 3,556 square feet (0.08 acre) in the context of the 10-acre riparian corridor in the Project area. This RSP would generally be placed in areas that are currently experiencing erosion (steep banks), lacking vegetation, and/or have existing hardscape. The RSP would have voids between the rocks that would be filled with soil, allowing for infiltration. These sites are spread-out throughout the 0.7-mile Project area.<br><br>• Site 1: 176 square feet of RSP on bank adjacent to existing RSP, presently vegetated with non-native grasses.<br>• Site 2: 329 square feet of RSP along bank lacking vegetation and in unvegetated scour hole in creek (presently rock and where Regnart Creek, a concrete-lined channel, deposits into Calabazas Creek).<br>• Site 3: 230 square feet of RSP along the bottom of the eroding and unvegetated bank.<br>• Site 4: 323 square feet of RSP in the creek in an area that has been scoured under existing secrete.<br>• Site 6: 1,522 square feet of RSP to reconstruct a near vertical and largely unvegetated bank.<br>• Site 7: 976 square feet of RSP to reconstruct a recent bank failure, presently vegetated with invasive ivy and occurring adjacent to existing RSP.<br><br>Given these existing conditions, installation of RSP would not significantly degrade existing functions related to nutrient cycling, | |

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| | this impact as significant, and to provide alternatives that would avoid and minimize such an impact. | stormwater runoff filtration, and substrates for benthic invertebrates.<br><br>For purpose of determining significance, the CEQA checklist questions ask whether the project would violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality (checklist item a) or whether the project would conflict with a water quality control plan (checklist item e). The proposed RSP repair areas presently provide little habitat value relative to the stated beneficial uses (COLD, WARM, and WILD). The RSP would help prevent further erosion at these locations, thereby protecting the existing vegetation above the RSP and limiting the amount of sediment transport to the creek, and consequently reducing harm to water quality. Accordingly, the placement of RSP in these limited areas would not *substantially* degrade surface water quality and would not conflict with a water quality control plan. Therefore, the significance determinations remain unchanged.<br><br>Valley Water also does not agree with the comment that the sheet pile walls at Sites 9 and 10 would induce erosion, thereby making the impact at these sites significant. The banks at Sites 9 and 10 are presently eroding and the Project is intended to limit this erosion. The sheet pile walls would be installed in the middle-lower portion of the bank, thereby protecting the integrity of the bank above the sheet pile walls, which are presently at risk of failure. Erosion of the bank below the sheet pile wall is occurring under existing conditions, not an impact resulting from the Project. As the lower portion of the bank erodes, in part or in full, the creek will have more room to naturally migrate and potentially form vegetated streamside benches. | |
| **A-2** | *Least Environmentally Damaging Practicable Alternative*<br><br>For the Water Board to permit the proposed Project pursuant to the Clean Water Act, section 401, we will require an alternatives analysis consistent with the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (Procedures) that allows the permitting authority to determine whether the proposed project is the Least Environmentally Damaging Practicable Alternative (LEDPA). | As noted in Comment A-1 above, per CEQA Guidelines Section 15071, the contents of an MND are not required to include an evaluation of Project alternatives. However, in response to this comment and for purpose of providing more information to the public, text has been added the MND to describe the process that Valley Water undertook to identify/consider project alternatives and develop project design. See Chapter 2, *Project Description*, under *Project Design Development Process*. | 2-19 through 2-22 |

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| | Although the LEDPA analysis is not required by CEQA, a project proponent may tailor their alternative analysis to fulfill both the CEQA and Procedures requirements to help expedite the Water Board's Project review to issue a 401 certification. Compensatory mitigation cannot be used as a strategy to arrive at a preferred alternative with a LEDPA analysis and should only be used after all avoidance and minimization measures have been exhausted. Valley Water would need to exhaust all impact avoidance and minimization measures before relying on compensatory mitigation to determine LEDPA when applying for a permit from the Water Board to authorize the Project.<br><br>In particular, the MND should be revised with analyses to show whether soft or hybrid bank stabilization methods are feasible. An example of a successful hybrid bank stabilization project is in Wildcat Creek in San Pablo, which the Water Board authorized in 2013. Like the Project reach, the Wildcat Creek site has very steep banks at 1:1 slope and near-vertical banks in some locations and is constrained by urban development. This project includes a steel H-pile supported retaining wall with rock, soil, and willow brush layering at the toe of the wall. The planted willows stabilize the bank toe with their root matrices and soften the upper sacrete-lined banks with their branching foliage. This results in greater function than the proposed Project's hardscape while providing support and stability for the upper banks. The existing native vegetation in the Project site suggests that water is present to support vegetation for soft or hybrid bank stabilization methods after an establishment period that would need to be supported by Valley Water. The MND should be revised to address alternatives which incorporate vegetated systems that maximize riparian functions and avoid or minimize hardscape. | In addition, Valley Water plans to rely on a nationwide permit (Number 13, Bank Stabilization) to comply with Section 404 of the federal Clean Water Act. Accordingly, a LEDPA analysis would not be required for this Project. In any event, Valley Water believes that this Project would meet the 404(b)(1) guidelines even if a LEDPA analysis was required. Pursuant to 40 CFR 230.10(a), a Section 404 permit cannot be issued if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences." "Practicable" means "available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes" 40 CFR 230.3(l). As the text added on pages 2-19 to 2-22 describes, while a more natural or "softer" approaches to addressing erosion (e.g., laying back creeks banks and installing plantings) might result in less adverse effects on the aquatic ecosystem than the Project would, the other alternatives would either (1) result in other significant adverse environmental consequences or (2) in some cases the alternatives are impracticable due to financial and logistical considerations in light of the Project purposes. | |
| **Comment Letter B – Received from the California Department of Fish and Wildlife (Bay-Delta Region) via Email on October 26, 2020** | | | |
| **B-1** | *MND, San Francisco Dusky-Footed Woodrat, pg. 4-32*<br><br>The MND provides mitigation measures (MM-BIO-1 and MM-BIO-2) to minimize impacts to San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*), a State Species of Special Concern, which is known to occur on the Project site. MM-BIO-2 describes the potential for relocating woodrat nests, if there is | MM-BIO-2 has been updated to reflect that a woodrat relocation plan would be provided to CDFW for review and approval prior to the start of construction activities. | 4-32, 4-33 |

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| | potential for them to be disturbed by Project activities. CDFW recommends that this measure state that a woodrat nest relocation plan will be provided to CDFW for review and approval prior to the start of construction activities. | | |
| **B-2** | *MND, Permanent and Temporary Impacts to Sensitive Natural Communities, pg.4-34*<br><br>Table 4-5 of the MND lists the permanent and temporary impacts to two habitat types, intermittent stream and riparian. A footnote for this table states that specific temporary impacts to intermittent stream habitat was not included in the table but does not provide the rationale. CDFW recommends that all impacts be included in the main section of Table 4-5. In Appendix C, Table 1 provides the summary of activities per site along with the work area in square feet. The work area included in Table 1 and the impacts listed in Table 4-5 do not coincide. It is unclear why some of the impacts in Table 4-5 do not add up to the work area in Table 1. CDFW recommends that clarification be provided.<br><br>The MND describes some habitat impacts such as permanent impacts to intermittent stream and riparian habitat. Temporary impacts to intermittent stream habitat are also described but it is not clear what activities are considered temporary impacts to riparian habitat. CDFW recommends that all impacts be clearly described in the MND and that these impacts be defined. Please note, that CDFW defines temporary impacts as those impacts where habitat at the impact site can be fully restored to pre-project conditions, values, and functions within one year of impact. CDFW defines semi-permanent impacts as those impacts where habitat at the impact site can be fully restored to pre-project conditions, values, and functions within two years of impact. CDFW defines permanent impacts as those impacts where habitat at the impact site either cannot be restored, due to permanent removal of habitat, or where habitat at the impact sure will require greater than two years to be restores to pre-project conditions, values, and functions relative to time of impact.<br><br>In Appendix C of the MND, approximately 32 trees are proposed for removal and Table 4 provides the range of sizes and species of | Table 4-5 has been updated to reflect the temporary impact to the stream channel from dewatering and equipment access (movement of equipment through the dry channel bed).<br><br>The work area totals in Table 1 (Appendix C) as well as Table 2-1 in the MND show the approximate areas in which the Project activities would occur, not the acreage of areas where Project activities would result in impacts on habitats or sensitive natural communities. As such, Table 1 in Appendix C and Table 2-1 in the MND also include areas that are not included in habitat impact totals in Table 4-5, such as non-jurisdictional areas (e.g., uplands). A footnote has been added to Table 1 in Appendix C and Table 2-1 in the MND clarifying this.<br><br>A more detailed description of the temporary impacts on riparian habitat has been added to the Biological Resources section in Chapter 4 under checklist item b). Temporary impacts on riparian habitat would result from equipment movement in the work area for bank repairs (Sites 5 and 8-10) or on portions of the reconstructed eroded creek banks that are formed of native soil and revegetated (Sites 2 and 6-10).<br><br>Table 4 of Appendix C provides the types and number of trees that are proposed to be removed and the sizes of these trees in ranges of 4 to 6 inches based on their diameter at breast height (DBH). This provides sufficient information for the purposes of assessing the level of impact from the removal of these trees and developing appropriate measures to mitigate for the impact, as the approximate size and age class of the tree is provided.<br><br>The mitigation ratios for permanent and temporary impacts to riparian habitat in MM-BIO-4 have been increased from 2:1 to 3:1 for permanent impacts, and from 1:1 to 1.1:1 for temporary impacts to account for potential temporal loss. Rather than adopting CDFW's suggestion to replace the trees based on tree size and species at the specified mitigation ratio, Valley Water's | 2-6, 4-35, 4-36, 4-38 |

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| | trees. CDFW recommends that this Table be more detailed and include the size of each tree individually.<br><br>The MND, page 4-36, provides a mitigation measure, MM-BIO-4, to address impacts to riparian habitat. As part of this measure, a Habitat Mitigation and Monitoring Plan (HMMP) will be developed and Valley Water proposes to mitigate permanent impacts to riparian habitat with a ratio of 2:1 and temporary impacts are proposed to be mitigated with a 1:1 ratio. Considering that permanent impacts will include removal of various tree species of different sizes, such as Coast live oak (Quercus agrifolia) and other mature native oak trees, CDFW recommends higher mitigation ratios than what is currently proposed in the MND. Since the MND does not provide adequate compensation for the loss of oak species, the Project could substantially adversely affect an important biological resource for nesting birds and roosting bats. Additionally, oak trees provide a diversity of ecological benefits and have slow growth rates, therefore, it would take several decades for planted oaks to grow to a size that could provide the same ecological benefits. Therefore, CDFW recommends that the following mitigation ratios be included in the MND:<br><br>• Non-native trees<br>  o <15 inches (in) DBH: 1:1<br>  o 15 in DBH or greater: 2:1<br>• Native trees (not oaks)<br>  o <6 in DBH: 1:1<br>  o 6-12 in DBH: 3:1<br>• Oaks<br>  o <4 in DBH: 1:1<br>  o 4 to 10 in DBH: 4:1<br>  o 11 to 15 in DBH: 5:1<br>  o 15 in DBH or greater: 10:1<br><br>If insufficient space exists on-site or on nearby lands to adhere to these mitigation ratios and adequately compensate for loss of habitat, then Valley Water should provide an appropriate off-site location in consultation with CDFW. The MND should state that a mitigation plan will be developed and provided to CDFW, and that it will include, but not limited to, multi-story revegetation plans. | approach to riparian mitigation would be based on the area of impact. This approach was selected because there is very limited space and irrigation opportunities to successfully plant trees in the Project area, and more trees does not necessarily translate into improved riparian functions and services. The riparian corridor surrounding Calabazas Creek historically would have been an oak savanna (lower density riparian canopy), therefore installing a dense riparian canopy would not reflect the area's historical ecology. Simply adding more trees to the area would not necessarily translate to improved riparian habitat, particularly given the existing dense riparian canopy on the site. Consequently, specific tree mitigation ratios are not proposed in the MND but the mitigation is designed to ensure there would be no net loss of riparian functions and services.<br><br>MM-BIO-4 has been modified to be more specific in reflecting Valley Water's approach to provide mitigation for the Project impacts on riparian habitat. MM-BIO-4 provides a performance standard of no net loss of riparian functions and services (e.g. native canopy and understory cover, habitat for birds and bats, protection of water quality, etc.) and specifies mitigation ratios for permanent and temporary impacts. MM-BIO-4 further requires Valley Water to submit a Habitat Mitigation and Monitoring Plan (HMMP) for review and approval by CDFW and RWQCB. The HMMP may include removal of invasive species cover (English ivy and giant reed) and planting of native trees and understory at Sites 9 and 10 to meet the specified mitigation ratios. Removal of invasive species would promote biodiversity, improve water quality, and restore and enhance habitat for wildlife (e.g., birds and bats). Planting of smaller stature native trees (i.e., buckeye, elderberry, and holly-leafed cherry) at Sites 9 and 10 would result in a moderately dense mid-story and understory that is compatible with the site (taller trees are not suitable due to overhead utilities), and provides shade on creek, filters stormwater runoff, contributes organic matter, and promotes biodiversity. In addition, the Project's removal of the existing sewer line and associated abutment would remove hardscape from the riparian area and reduce the risk of stream contamination, as the sewer pipeline previously leaked into the creek. The Project's restoration activities (which would include | |

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| | On page 4-37, the MND states that there may be risk of mortality through root pruning. CDFW recommends that if trees require root pruning that they be monitored and included in the HMMP. If the tree health declines, additional mitigation for impacts or loss of trees may be required.<br><br>Another measure that the MND includes to minimize impacts to trees is MM-BIO-5, which includes temporary construction fencing around an established tree protection zone (TPZ). If the fencing will be used as a visual aid, CDFW recommends that the fencing be installed in a way to provide space between the ground and fence in order to allow wildlife to move freely (e.g., reptiles, amphibians and small mammals).<br><br>Please be advised that CDFW will likely include all of the above recommended mitigation measures in the LSA Agreement for the Project, as applicable. | replanting of trees and vegetation) would further offset the Project's adverse impacts on riparian habitat. Together, these actions would ensure the riparian functions and services in the Project area are maintained or enhanced.<br><br>In regard to tree root impacts, Valley Water will account for impacts to tree roots in the HMMP, as recommended by CDFW. The Tree Protection Zone (TPZ) fencing described in MM-BIO-5 has been updated to state that "where feasible, the bottom of the fencing should be elevated above the ground surface to allow for wildlife movement." | |
| **B-3** | *MND, Reach-wide/Watershed-wide Approach to Address Erosion*<br>Although the Project proposes to address 10 high priority sites, bank erosion is occurring at other sites on Calabazas Creek. CDFW is concerned that in the future other sites may require additional hardscape to address bank erosion. CDFW recommends that Valley Water analyze sources and causes of erosional features within the Calabazas watershed and undertake a reach-wide or watershed-wide approach to address bank erosion that includes environmentally friendly methods, such as bioengineering, rather than hardscape. Preferably, this reach- or watershed-wide analysis would be included in a revised and expanded CEQA document that includes the 10 high-priority sites. Alternatively, the MND would be revised to describe the pathway for future analyses under CEQA for the rest of the reaches in the Calabazas watershed. | While Valley Water acknowledges the various factors influencing erosion in the Project area and the watershed more broadly (i.e., starved sediment supply), a watershed-wide approach is beyond the scope of this Project. CEQA does not restrict an agency's discretion to identify and pursue a particular project designed to meet a particular set of objectives. *California Oak Foundation v. Regents of University of California* (2010) 188 Cal. App. 4th 227,276.<br><br>The intent of this maintenance Project is limited to stabilizing erosion at 10 discrete locations within a 0.7-mile section of Calabazas Creek, which pose a public safety risk to adjacent property owners. Furthermore, as part of the interagency meetings, Valley Water provided data to CDFW demonstrating that there have been no meaningful changes to the channel bed elevation in the Project reach between 2002 and 2017, demonstrating that the channel bed has reached equilibrium in the Project reach (see Appendix G, added to the MND). | Appendix G (added) |